HYGEIA

The HEALTH MAGAZINE

PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION

May
1935

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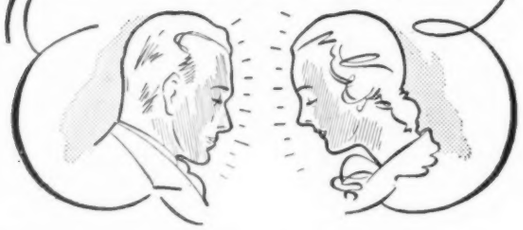
PRENATAL CARE

DIPHTHERIA

EMBARRASSING MOMENTS



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HYGEIA•

MAY 1935

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Published by the American Medical Association
Edited by Morris Fishbein, M.D.

Volume 13
Number 5

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a timely article by Louis Gershenfeld, professor of bacteriology and hygiene, Philadelphia College of Pharmacy and Science. Professor Gershenfeld is the author of "The Menace of the Rat"; "Fighting an Old and Deadly Enemy," and a series of articles, "Ridding the Household of Insect Pests," which appeared in Hygeia.

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MAY 1935

May Day Versus Diphtheria

By W. W. BAUER

MAY DAY is traditionally children's day. In England there is a quaint custom! On the first day of May, groups of children hang May baskets on the door knobs of those houses whose inmates the neighborhood children particularly love. It is expected of course that substantial appreciation in the form of sweetmeats or other treasures dear to childish hearts will be forthcoming from those honored with the gift of a May basket.

In 1924 the American Child Health Association announced its intention of designating May Day as Child Health Day in the United States. Since this announcement the idea has taken root firmly, so that May Day has become virtually the official Child Health Day of the United States, established by Act of Congress and proclaimed by the President of the United States as well as by many state governors. In the beginning, May Day had only a limited significance as far as actual accomplishments toward health were concerned. It consisted largely of community demonstrations in which children were prominent. Among such demonstrations were parades, pageants and outdoor and indoor fêtes of various kinds, and usually there were speeches and news articles featuring child health. The early May Day efforts were sporadic and in themselves did little more than call attention to what communities were doing for the health of their children or, in many instances, what they should have been doing and were not. Nevertheless, out of these early May Day demonstrations grew some better realization of the importance of child health. The booster type of activity on May Day has largely subsided, but a year round consciousness of obligation on the part of the community toward the health of its children has taken its place.

THE medical profession has never looked with much favor on health drives. Too often a health drive is merely a flash in the pan! When the tumult and the shouting die there is nothing left except wasted effort and disillusionment. The child health movement has passed from the hip-hip-hurrah stage into one of solid accomplishment. Physicians have not always approved all the expressions of community interest in child health because there have been errors and abuses. Too often the community has attempted to achieve better child health without consideration for the place its physicians must have in a successful child health program. Nevertheless, physicians have always been in accord with the basic purpose of fostering child health and protection. In many communities, physicians have been the motivating spirits in such movements and have supported them by giving freely of their time and influence.

For 1935 the American Child Health Association will launch on May Day an effort to emphasize immunization against diphtheria as one of the most important phases of health protection in childhood, especially in infancy. The medical profession is in full accord with this movement, which is to be not simply

EDITORIAL

a May Day demonstration, nor even a one year effort, but a constant objective from now on. HYGEIA, as in the past, is glad to further the cause of diphtheria prevention.

AS RECENTLY as thirty years ago there was perhaps no disease which struck greater terror into the hearts of parents than diphtheria. The greatest toll was taken among babies and children under 2 years of age. It is not much more than fifty years since Klebs, in 1883, discovered the diphtheria bacillus in the throats of children suffering with the disease, and Loeffler, in 1884, caused its growth on artificial food mediums. There followed intensive experiments with the bacillus and the powerful poison that was soon recognized as a product of its life and activity. In 1894, von Behring in Germany announced the development of diphtheria antitoxin. In the meantime, Roux in Paris had been working along the same lines; he should be entitled to a share in the credit for the development of antitoxin. Within fifteen years the death rate from diphtheria, which had formerly been as high as 50 per cent of the cases, declined to 10 or 15 per cent; and by 1920 there were many cities where it was as low as 5 or 6 per cent. Meanwhile, though antitoxin saved lives it did not eradicate the disease. Great interest was attached therefore to the announcement by Schick in 1913 that children could be tested to ascertain their immunity or susceptibility to diphtheria. About the same time came the development of toxin-antitoxin which, as its name indicates, is a mixture of diphtheria toxin with diphtheria antitoxin. This was soon proved capable of protecting children who by Schick's test had been found unprotected against diphtheria. The latest development within the past five years is the replacement of toxin-antitoxin by toxoid, thus removing the last serious objections to diphtheria immunization; namely, sensitization of immunized children against subsequent necessary administration of serum products.

WITH TOXOID there is now available a means of diphtheria immunization which is high in potency and high in safety as well as being extremely stable, so that it can be packaged readily and shipped and made available in remote areas. The prevention of diphtheria is essentially a simple procedure, and with the modern availability of necessary materials it is no farther from any patient than his own doctor's office.

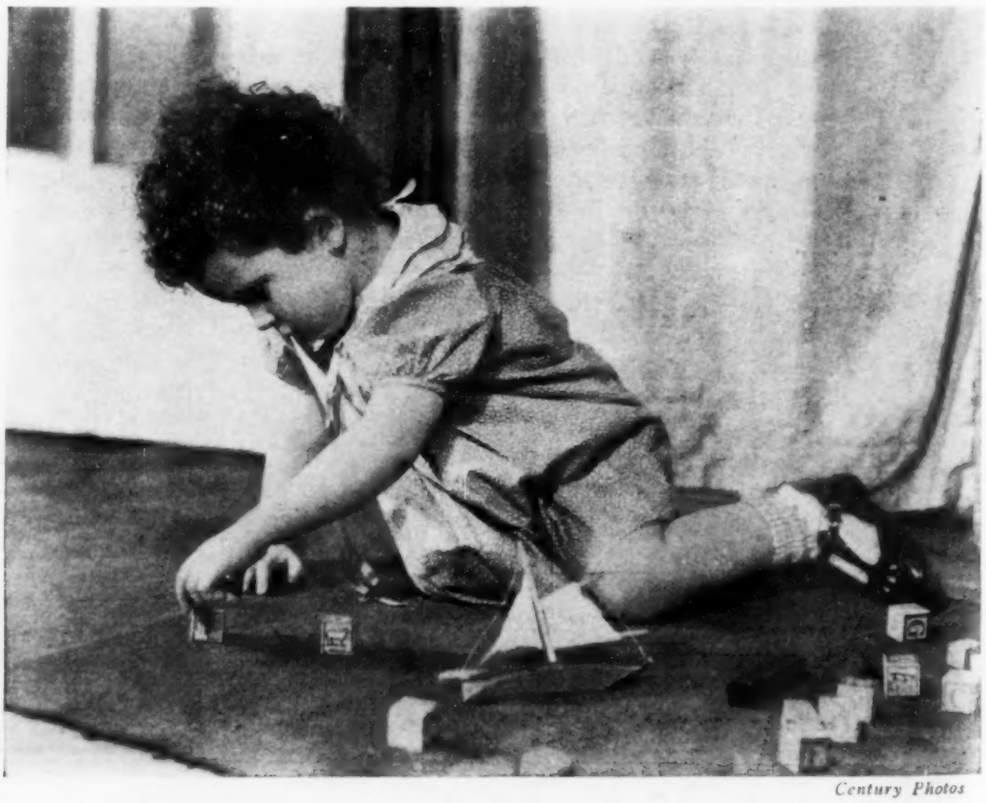
The objectives of the campaign for wider immunization against diphtheria, headed by the American Child Health Association, are quite simply stated. Parents are encouraged to have this immunization done by the physician of their own choice, in his office, before babies are 1 year old. Success in this effort requires the continuous immunization of babies within twelve months after birth. Intermittent efforts will not accomplish the purpose. Diphtheria can be stamped out completely by this simple procedure, but it requires close team work between public health authorities, physicians and parents. HYGEIA is glad to urge its readers to help remove diphtheria once and for all from the list of health hazards in childhood.

Diphtheria—
A DREADED SCOURGE

By Louis Gershenfeld

THE DISEASE now known as diphtheria occurred in ancient times and can be traced under various names to the Homeric period of Grecian history. Throughout the nineteenth century great epidemics of diphtheria spread through populated areas in this country, especially in the large cities. Such epidemics were found and reported in the larger communities, and epidemic waves recurred at intervals of five and ten years. In days gone by, the death rate ranged between 20 and 60 per hundred thousand, and during periods of epidemics it reached well over the 200 mark. Children are the most defenseless victims of this disease, and naturally this scourge has been particularly a school disease, spreading among children congregated in large numbers in any environment. With the general improvement in sanitation and the increased use of modern methods of control there has been a gradual decrease in the incidence of diphtheria. These measures and more adequate methods of treatment have resulted in a mortality rate decreased ten and even twenty fold during the past five or six decades. Death rates of cities for the past forty years, or since the discovery of diphtheria antitoxin, produce valuable information for study.

Individuals no longer need be kept in dread of this scourge, for there is no reason why children should have diphtheria today. There is no other disease afflicting mankind which is so thoroughly understood by modern science as diphtheria. Accurate and simple methods of bacteriologic diagnosis are available to detect questionable cases as well as carriers of diphtheria. A test is available which makes possible the detection of those who are susceptible to this disease, so that one can determine accurately whether a child is in danger of contracting diphtheria, if he is exposed to it. If the child is stricken, a specific remedy for the sick one is always at hand; and if it is used early and properly, it makes recovery almost certain. Methods of permanent protection against diphtheria by simple treatments and procedures of proved value can eliminate this disease as a scourge of children. Modern science has won the victory over this once dreaded infection, but the wholehearted cooperation of every one is needed in this warfare to aid in



DIPHTHERIA IS TRANSMITTED FROM ONE INDIVIDUAL TO ANOTHER DIRECTLY OR INDIRECTLY BY CONTACT OR DROPLET INFECTION. THE INFECTED TOYS OF A DIPHTHERIA PATIENT OR CARRIER MAY BE RESPONSIBLE FOR THE PASSING OF THE ORGANISM FROM THAT PERSON TO ANOTHER.

Century Photos

making the danger of diphtheria practically negligible.

Diphtheria is transmitted from one individual to another directly or indirectly by contact or droplet infection, as in spitting, coughing, sneezing or loud talking. Kissing or the use of infected toys, pencils, eating and drinking utensils, and soiled bedding or clothing of a diphtheria patient or carrier may be responsible for the passing of the organism from one to another. It has been found that individuals may retain toxic diphtheria bacilli in their nasal passages and throats for long periods after recovery from the disease. As they are recovering such persons are known at times as convalescent carriers; but there are quite a number of persons, harboring the bacilli in their throats and adjacent areas, who appear in good health and have never given evidence of an attack of diphtheria. Such individuals are known as contact carriers. Both groups may be transient, or temporary, carriers or chronic carriers. It is these seemingly healthy persons who as carriers are definite menaces and are most likely the real cause for the existence of diphtheria in modern communities. Less important, though still of some significance, is the possible transmission of the germs by infected food and also the fact that outbreaks of diphtheria have not been uncommon where milk was the vehicle of transmission for the infection. The bacilli may find their way into the milk either because of the presence of a case of diphtheria, perhaps a mild one, or because of contamination from a milk handler who is a diphtheria carrier.

As far back as 1884, Loeffler and other early workers in diphtheria suspected and assumed that, in part at least, the harmful effects of the bacilli causing this infection were due to a poison, diphtheria toxin, elaborated by the organisms. It was in 1888 that Roux and Yersin, two pupils of Louis Pasteur, the eminent French scientist, revealed the actual existence of such a toxin when they definitely proved that diphtheria bacilli produce a soluble toxic substance.

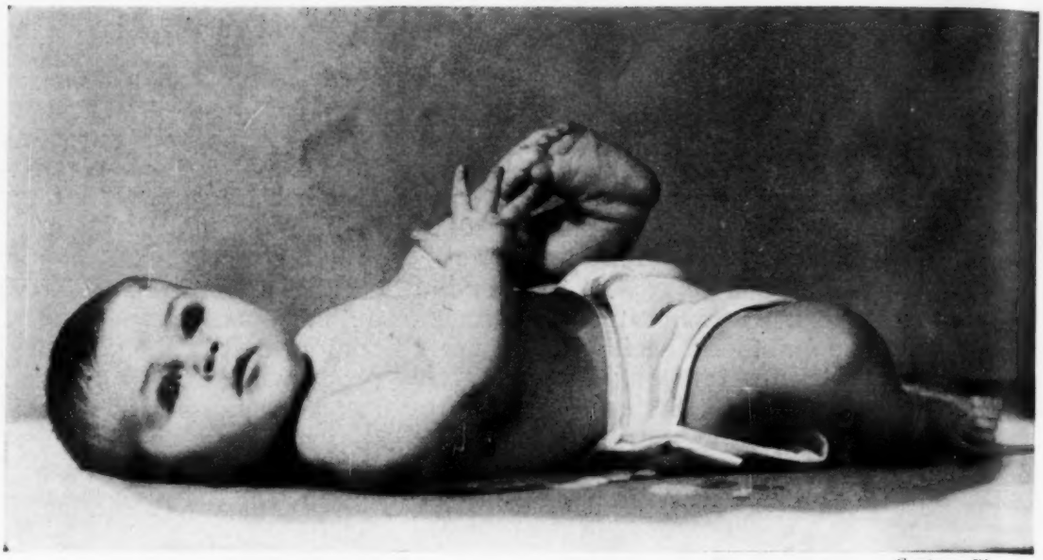
Diphtheria toxin is not an imaginary product. In fact it is possible to produce it in as large amounts as may be needed. It is true that the exact chemical composition of the commercially prepared toxin is not definitely known. On the other hand much is known of its stability, its behavior toward chemical and physical agents and its reactions after it is injected into animals. Methods have been developed for measuring the degree of toxicity or potency of toxin in terms of the fundamental unit of toxicity. The production of a potent toxin is of great import today, for this becomes the starting point for the manufacture of all the other preparations employed in the prevention and treatment of diphtheria.

In the production of artificial remedies to combat or prevent disease, science most frequently employs technics simulating nature's own process of developing such valuable agents. In diphtheria the system produces antidotes or neutralizers, known as antibodies, which attempt to neutralize or render harmless the poison or toxin given off by the invading diphtheria bacilli. It is by means of these antibodies, the mobilization of troops, that the progress of disease can be retarded. The greater the number of troops, the greater the antibody content and the more rapid the mobilization; that is, the quicker these antibodies are produced, the more assured will be the quick return to normal health. The bacteria would thus be unable to become entrenched and gain the upper hand. When the antibodies are specific for the neutralization of toxin they are most frequently spoken of as antitoxic bodies, or antitoxin. The methods for producing diphtheria antitoxin commercially vary only in minor technical details. The antitoxin content in the blood of horses, injected with diphtheria toxin, reaches a certain peak, and it is not increased even though additional injections of toxin are given. The horse, having thus been brought up to a "production basis," is ready for bleedings. The collected blood is processed to separate the serum, for the latter contains the antitoxic substances, or antitoxin. By means of improved methods in the concentration and refinement of the antitoxic blood serum it is possible to eliminate most of the undesirable albuminous substances and other valueless constituents of the serum. There is then available in a small volume a superior product of concentration and potency high in antitoxin value and low in content of valueless albumins and solids. The result is that it is easier to administer such a product than to inject blood serum, and there is less pain to the patient and a quicker absorption. However, of greatest importance is the fact that the rashes and other undesirable effects produced in the patient and caused by the injection of blood serum, because of the albumins present, are less apt to follow.

Experimentation and practical clinical observations have revealed that with the lengthening of the interval between the development and absorption of the poison or toxin in the system and the injection of the antitoxin, rapidly increasing doses of antitoxin are necessary, and if too much time has elapsed, no amount of antitoxin will save the patient. It is therefore apparent that the earlier the diphtheria antitoxin is administered, the more certain and rapid is the effect. Though diphtheria antitoxin is most valuable in the treatment of diphtheria it may be employed as a temporary preventive remedy against this scourge.

The Schick reaction is a simple and fairly accurate practical test to determine and separate individuals who do not have naturally, in

TO ALL PARENTS. SCIENCE SAYS: "DON'T LET DIPHTHERIA THREATEN YOUR CHILD. ANY CHILD WHO DOES NOT POSSESS NATURAL IMMUNITY CAN BE PROTECTED PERMANENTLY AGAINST THIS SCOURGE BY THE APPLICATION OF SIMPLE AND SAFE MEASURES."



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their blood, an amount of diphtheria antitoxin sufficient to render them immune to diphtheritic infection. The test can be performed and applied to any person regardless of age. The Schick test has been found eminently satisfactory and is of especial value for routine use in hospitals, institutions, schools, large bodies of troops and among individuals exposed to diphtheria. The test is used in determining whether it is necessary to give immediate protection to such persons by the administration of an immunizing dose of diphtheria antitoxin if they have been exposed to diphtheria, or, if there was no exposure, whether it is necessary to immunize them for the future with other diphtheria preparations so as to create a more lasting protection. It has been found unnecessary to give prophylactic injections of antitoxin to individuals who show a negative Schick reaction, except in the case of extremely young infants.

THE technic consists in injecting intradermally or intracutaneously, that is, between the layers of the skin, a minute quantity of the diluted extracellular diphtheria toxin. If the blood of the subject tested does not contain any diphtheria antitoxin or contains an amount insufficient for the protection of the individual, a positive, temporary, harmless reaction will be apparent within from twenty-four to forty-eight hours and may persist for from seven to fifteen days. It is at its height in from forty-eight to seventy-two hours when readings are generally made. A control test is often conducted when individuals over 5 years of age are given the Schick test. Such questions as "Is my child susceptible to diphtheria?" and "Am I in danger of contracting diphtheria if exposed to it?" are easily answered by the Schick test. This test is also of distinct value in determining whether protection has been attained after injections of diphtheria preparations have been given to create an immunity against diphtheritic infection.

Diphtheria prevention programs now occupy and should continue to occupy a most prominent place in health programs of all communities. Every one and especially every child has the right to demand and receive the benefit of the great advances made by science in the control of this dreaded scourge. There is no law that will compel an individual to receive immunization. Children, who are the ones to be considered, look chiefly to their parents for advice and guidance. All parents are most anxious to provide for the welfare of their children, and it is to their sense of obligation that science appeals and says: "Don't let diphtheria threaten your child. Any child who does not possess a natural immunity can be protected permanently against this scourge by the application of simple and safe measures. Either the health department in your community or your family doctor will give you all the necessary information. Your prompt action now may save you money, time, aggravation or an illness serious in its effects on the child. And who knows but that some lives may be saved which otherwise might be lost? Your duty is to act now!"

WHEN children or adults have been exposed to diphtheria they may be given immediate though temporary protection against the disease by the injection of 1,000 or more units of diphtheria antitoxin. The immunity resulting from this injection lasts for a period of from two to four weeks at the utmost. Hence it is apparent that, though diphtheria antitoxin is of great value in the treatment of diphtheria where a large quantity of antibodies is required quickly to combat the invading extracellular toxins produced by the diphtheria bacilli, it is unsatisfactory for developing or creating a more lasting or permanent immunity to this scourge. It is for this reason that efforts have been made to find materials which would be safe, which could be easily administered and which would possess

definite advantages in producing a more lasting immunity. What was wanted was a product and a technic which would be as effective against diphtheria as modified smallpox virus and vaccination are against smallpox. The introduction of satisfactory agents for the production of a more lasting immunity to diphtheria has resulted after a long series of investigations in the presentation of the following products: diphtheria toxin-antitoxin (T-A) mixture; diphtheria toxoid-antitoxin mixture; diphtheria toxoid and refined diphtheria toxoid (alum precipitated); and toxin-antitoxin flocculi and toxoid-antitoxin flocculi.

TOXIN-ANTITOXIN mixture is a sterile, colorless liquid. It is prepared from diphtheria toxin which has been previously aged and standardized, then mixed with diphtheria antitoxin and finally diluted so that the finished preparation contains a fairly large amount of toxin with a minute quantity of antitoxin. To remove and eliminate the remote possibility of sensitizing individuals to horse serum, the antitoxin in the toxin-antitoxin mixture is obtained from the blood of immunized sheep or goats. Active immunization against diphtheria is accomplished by using a dose of 1 cc. of the mixture. Three injections, all of the same strength, are given, at weekly or biweekly intervals, beneath the layers of the skin in the arm at the insertion of the deltoid. The development of an immunity frequently requires from eight to twelve months before the patient shows a negative reaction to the Schick test. It is important that all children receiving toxin-antitoxin mixture should be given a Schick test twelve months after the initial injection. From 10 to 15 per cent may still show a positive Schick reaction. Such children require an additional series of three injections and should be given a Schick test several months after the completion of the second series or after each additional series of injections in order to determine whether an immunity has been created.

With long standing, diphtheria toxin will lose its toxicity, but it will retain its initial power for neutralizing its specific antitoxin. Diphtheria toxoid, or anatoxin, on the present market is a detoxified, or nontoxic, modification of diphtheria toxin. The conversion of toxin to toxoid is effected by treatment with formaldehyde or other chemicals and incubation or exposure for varying periods of time at different temperatures. Toxoids are free from any serum protein which toxin-antitoxin mixture contains because of the presence of the antitoxin. Toxoids are stable in their immunizing powers. It must be noted, however, that protein from the culture medium from which the toxin entering the toxoids originates is found in toxoids, and slight protein reactions especially in older children and adults are possible in those sensitive to such proteins. In children under 6 years of age, protein reactions attending the use of toxoids are relatively few and unimportant. Diphtheria toxoid used for children and adults is generally administered subcutaneously in two doses of 1 cc., or 15 drops, each, at intervals of from three to four weeks. Infants under 1 year of age receive two injections of only 0.5 cc. in each dose. In the use of this as well as all other prophylactic agents, employed to obtain a more lasting immunity to diphtheria, the Schick test and control are to be made from three to four months after the last injection, to determine whether protection has been afforded. Toxoid, or anatoxin, is replacing the toxin-antitoxin mixture for immunization, as fewer injections are needed, immunity is developed more quickly, and a greater number of persons who showed a positive reaction to the Schick test show a negative reaction when toxoid is used as the immunizing agent. Refined diphtheria toxoid (alum precipitated) and other precipitates, such as toxin-antitoxin flocculi or toxoid-antitoxin flocculi, and even extracts of these precipitates have been used and are being employed successfully for immunization against diphtheria without producing annoying or objectionable reactions. It is possible that products prepared along these lines may soon be used as the most effective immunizing agents to afford a lasting protection against diphtheria.

AGE has long been recognized as an important factor and contributing influence in susceptibility to diphtheria. It appears that new-born children are endowed with a certain amount of diphtheria antitoxin in their blood. This immunity in infants is received from their mothers, for if the mothers are immune, as most adults are, they transfer the antitoxin through the placental circulation and later probably during nursing. This transmitted immunity, which in the new-born infant may last as long as twelve months, soon disappears and is gradually reacquired naturally from the ages of 10 to 12 years and later. It is therefore exceptional to find infants of a few weeks suffering with diphtheria, and children during the first six months of life are rarely attacked. The most susceptible period is between the ages of 1 and 10 years. The dangerous period is between the ages of 2 and 6 years. Most adults possess some degree of natural immunity.

It must be remembered that a child under 1 year of age and even as old as 2 years may show a negative reaction to a Schick test, for reasons previously mentioned. Most of these children when tested at a later period, however, will give a positive Schick reaction. After 4 or 5 years of age, the reactions at this period of life, whether negative or positive, continue to be the same probably for life. As most children between 1 and 6 years *(Continued on page 475)*

What Are

THE FAMILIAR MR. X WHO BOASTS OF "PERFECT HEALTH" WHEN ENGAGED IN THE PURSUIT OF A BUSINESS CAREER WOULD PROBABLY FIND REASON TO COMPLAIN BITTERLY IF HE SHOULD CHANCE TO BE CALLED ON SUDDENLY TO ASSUME THE LUMBERJACK'S DUTIES.

THE FRONTIERS of health bound the limits of opportunity, for disease is not a fixed entity. It is rather a vague and highly relative condition which blends imperceptibly into health on the one hand and into death on the other. Once upon a time, and unfortunately to some extent even yet, health and disease were looked on as clear-cut categories. Ideas about them were static; they were mere wordy, rhetorical forms. Today we know that there is a more-or-lessness about health and that to understand health one must also understand disease. Moreover, to grasp the true meaning of either, one must have a knowledge of physics, chemistry, biology, anatomy, physiology and a host of other interallied sciences, to say nothing of psychology and philosophy. The real doctor, then, is of necessity artist, scientist and philosopher.

As an example illustrating what a fluid entity this commodity health turns out to be, one may recall many common and universally recognized experiences occurring in everyday life. In youth the boy or girl who cannot run without distress is looked on as ailing, whereas in middle age we are not too much concerned with puffing. In later decades this unwelcome phenomenon may not mean disease. The oncoming years

Your Health Frontiers?

have left their mark, but we still permissibly think of ourselves as being healthy, although it is a health of a different, although useful and highly desirable, order.

The body, as an organization, has the mysterious and unexplained capacity of holding to definitely balanced levels of health. The scale is sliding, and many factors enter into the final functional result, which is always a total response to specific stimuli. If, through injury or disease, serious damage is sustained by the organism, a lower capacity level is finally established as the basis of the new "normal." The total organism now tunes itself to this narrower horizon of possible activities and lessened freedom. In cases in which damage is not so extensive, the power of the cells to recover may accomplish the miracle of returning to their original state of excellence, and complete health is said to have been restored.

ACTION is the touchstone and the measure of health. The quiescent and nonparticipating sedentary person may not know whether or not he is healthy. The familiar Mr. X. who boasts of "perfect health" when engaged in the pursuit of a business career would be more than likely to find reason for bitter complaint should he suddenly be called on to assume the duties of a lumberjack or a farmer. A chain is only as strong as its weakest link, and the link is most liable to break in the face of strain. Most of us are healthy only within certain limits, and as we grow older these boundaries will change and usually contract. Disease, accident and circumstance alter the shape and scope of our health frontiers.

The body might be likened to a vast and exquisitely integrated orchestra. The rising crescendos, the softening diminuendos, the fugues and the pulsing of an unfolding theme may suddenly become disharmonic if one instrument begins to play out of tune, to lag behind or to run ahead. The entire symphony is ruined; chaos develops, and the music ends abruptly or in diminishing gasps. Analogously, a person may have good lungs, liver, skin and eyes, but a vessel in the brain may be too thin. It breaks. It maims or destroys. The secretion of a little too much hydrochloric acid in the stomach may render us wholly miserable, while a slight uncorrected astigmatism can easily take the joy out of life.

The philosopher John Locke once advanced the idea that the mind at birth was like a clean white piece of paper on which experiences would write impressions to fashion our identities. Today we know that the infant is born into the world with many reaction tendencies already fixed. However, the influence of environment is still all important. Consciousness is not a smoothly flowing stream as the psychologist William James once thought. It is a discontinuous process, more like a series of cinema pictures. The reel may speed up, or it may slow down. The world, for us, will appear differently during an accelerated phase than it does when the pictures run more slowly; and, as health varies, so will the quality of our consciousness. The very nature of reality is, therefore, seen to be dependent on the qualitative balance of the body. In a word, it is dependent on health.

There are basic reasons for the buoyant and invariably optimistic person who laughs his way through life. There are also reasons for the chronically ailing and worried grouch who casts a shadow over his own life and the destiny of all those who come in contact with him. Nor are such reasons necessarily referable to the somewhat too convenient catch-all of a suppositional bad training. If we would understand the rudiments of health and its variations, we must think of bodily processes which are invisible even to the most powerful microscopes. Function is dependent on structure, or at least it is correlated with it.

THERE are instincts and reflex patterns, there are glandular drives which impel the human animal now this way and now that. The swings of such variation may cover wide latitudes, and the more urbanized the individual has become, the more liable will these variations be to bring him into trouble. The city with its problems places a burden on the man-animal, who was not meant for paved streets and eternal crowds. The problem of the modern world is the pitting of man's natural endowments and tendencies against an artificial bondage with necessary rules to insure collective, rather than individual, freedom.

Physical education is a new profession which is attempting to furnish new outlets for man's inherent potentialities. It recognizes that the basic phylogenetic or racial pattern of human nature cannot be actually changed; it can merely be modified. Physical education is attempting to offer a system of controlled development through action and experience. More practical mental hygiene can be learned on the gymnasium floor, at the playground or on the sport field than in the "patch up" system em-

By SHAILER UPTON LAWTON

THE CITY WITH ITS PROBLEMS PLACES A BURDEN ON THE MAN-ANIMAL, WHO WAS NOT INTENDED FOR ETERNAL CROWDS OR PAVED STREETS.

ployed by too many so-called freudian analysts. The work of Pavlov has shown not only that the conditioned response establishes motor, chemical and physiologic reactions but that it establishes and defines mental and emotional attitudes as well. Bravery and honesty are no longer thought to be general moral attributes. They are specific reaction patterns to special situations. A child may be brave here, cowardly there, honest with his parents and dishonest with the policeman.

PLAY can be controlled. It can teach honesty and bravery. Grace, beauty, skill and endurance can be attained only through doing. Reading about these assets will not bring them into our possession, nor will sermonizing effect the perfection of a desired Utopian race. There has been rather too much preaching and not enough action ever since men organized into a complex society. It is time that we learn to distinguish between teaching and educating. The first is verbal, didactic and dictatorial; it lays down rules and does not especially foster originality. The second seeks to develop the total organism by putting it into as many experience situations as is possible. To read about the stars is thrilling but to have seen them through a telescope satisfies the soul. One may not become a concert organist, but to have played at playing an organ adds immeasurably to all future appreciation of music. The aim of life may not be tightrope walking, but the child who has balanced on a self constructed wire has acquired certain greatly worthwhile understandings which he or she would have otherwise missed. The hands, all the voluntary muscles of the body are the organs of the eternal spirit. By means of these we become eloquent, or because of them we may remain inarticulate. To do something is to have lived. Through action we may, if properly guided, learn to take life "on the chin." Growing up, becoming adult, though still retaining the essence of youth's buoyancy and enthusiasm, is a paramount need, and it is the only sure formula for the attainment of relative freedom and happiness.

Walter Lippman in his "Preface to Morals" has written well and beautifully on maturity and what it means to be truly adult. The sulking, overdependent, back-biting, jealous, talebearing adult is not a healthy person. He is in danger throughout his entire earthly sojourn. The least he can do is to make his associates variously unhappy.

Responsibility is a conception worthy of reflection and contemplation. Few persons are actually capable of shouldering its opportunities and its burdens. The wider one's health frontiers, the greater measure of true responsibility one can manage with grace, charm and efficiency. The world needs persons who are endowed with symmetrical and deeply rooted, as well as flexible, health. The anemic and consumptive esthete of medieval model is no longer an ideal. Nor would we aspire to a Rubinesque amassing of flesh and blood. The fine balance of mind and body with latitude and fertility of organic response was the Greek conception. This is an ideal worth working for today. The attainment, as far as possible, of such a goal for our youth is a growing necessity.

THE factor of heredity, among many other influencing variables, will determine the possible limits of our health horizons. As Prof. Ales Hrdlicka once said, "When young people contemplate marriage and children, they would do well to select the grandparents of their actual mates as a criterion for a choice." Good family stuff is something which cannot be duplicated by prescription, careful living, diets or medicines. Stamina is born into the germ plasm. It is a precious heritage. The silly formulas of oldsters who have achieved great years are often humorous as well as misguiding. One says he has seen 100 winters because he has drunk and smoked since the age of 3; another one claims such and such a diet to be the panacea, and so it goes. The real reason for the survival of

these phenomena, in the great majority of cases, is to be found in the quality of the family tree.

Although it is recognized that genetically unfit strains have produced individuals of attainment and even distinction, such an experiment is sure to be costly in the aggregate. The problem boils down to a probability hazard, wherein the possibilities of fruitful issue present too large a potential risk to be undertaken by the modern social system. Marriage, when it is founded on love or understanding, is a beautiful adventure. Having children, however, is a serious undertaking. Many families should not bear children. The infliction of such disease tendencies as Huntington's chorea, epilepsy, insanity and a host of others is a grave and hazardous responsibility. The prime question to be answered is, What type of health certificate can a given set of prospective parents give a child? If this question could be honestly faced, much unnecessary suffering and deterioration of future generations might be avoided. Every citizen owes a responsibility to himself and to the state. The right to have children is something more than biologic; it is social. The state needs healthy citizens. The complicacy of modern civilization lays an increasingly heavy burden on the weakling. By and large, though there are of course notable exceptions, the race of life goes to the strong body and mind. What do you have to offer children genetically?

No riches can compensate for a body thwarted, menaced and shackled by ill health, dimming the vision of the mind or hanging over one's head the doubt, blending into fear, which whispers constantly, "If I do so and so, it may cost me too dearly." This sword of Damocles, this icy finger of an avenging fate, has crushed the spirit of untold millions. So great is the value of the jewel of effective health that discerning men have long entertained an appreciation of its transcending importance. More than 2,000 years ago Herophilus of Alexandria wrote, "To lose one's health renders science null, art inglorious, strength effortless, wealth useless and eloquence powerless." No more cogent lines have ever been penned than these, set down by one of the greatest of all physicians.

Fortunately the body is equipped with safety margins which permit wide latitude. Man can live in effective health with one kidney or with more than half a lung obliterated. Nature is a miraculous provider. She has equipped our bodies with parts capable of functioning smoothly long after they have suffered severe wear. The percentage of latitude varies from organ to organ and from individual to individual, according to heredity and the accidents of environment. The point most essential to grasp is that health is not static but that it is functional and dynamic. If we adopted this concept, our ideas would tend to emerge from present confusion. We would then no longer speak of health, which, at best, is a vague and unsatisfactory word. We would find it necessary to think of health in terms of a certain situation or a given task. Health is always *for* something. One may be healthy for walking but not for running a mile race. As long as one has health enough for doing *something*, one is free *from* something. The levels of health and the levels of freedom vary together.

The good life consists in being able to do with facility that which one wants to do. If we have health enough to enable us to achieve such a goal, we will really have lived. If a man's desire runs to heroic physical acts, his hereditary equipment may forever bar him from realizing his dream. Perhaps he has not enough health for accomplishing that given activity; but if he desires to play for joy instead of for glory, he may yet attain an even greater goal.

Such men as Robert Louis Stevenson and Dr. Edward Livingston Trudeau attained the good life. Both were ravaged by tuberculosis, but they had enough health for accomplishing enduring works and for finding the joy of living. Sir William Osler wrote a famous essay called "Aequinimitas," a beautiful piece of profound thinking which should be part of every child's education. "Sufficient unto the day is the evil thereof." Count your blessings, make the best of what you have, do the best you can and then refuse to worry. This is a formula for living. Any one can face life, often with joy but certainly with fortitude, if he or she takes it step by step, minute by minute.

The concept, then, should be of "healths" instead of health. There should be the idea of health for something, instead of a vague heroic notion, a sort of Greek god concept, a perfection complex which no mortal ever achieved.

Health frontiers! They may appear to be endless in one bodily department; they may be cramped in another. Not until death is at hand, however, will the entire horizon close in on us, and then perhaps what now seems to be a contraction may turn out to be going through the looking-glass into something wider than ever before attainable. There is an infinity in every microcosm as well as in each macrocosm. The transcendently small is an infinity just as truly as is the infinitely extended and great. Both are unbounded realms. A blade of grass holds inextricably locked within its body the unanswerable secret of life. The stricken and "helpless" Heine still wrote his beautiful poems. The rigid and arthritic Da Costa, wheeled into the amphitheater in an invalid chair, thrilled generations of eager and fortunate medical students. One man maintains stoutly that he never truly began to see until, quite suddenly and without warning, he lost his eyesight.

What are your health frontiers?

The Care of the Eyes

By
LOUIS
LEHRFELD

WHEN THE EYES ARE TO BE FLUSHED A LARGE WAD OF COTTON SHOULD BE PLACED AT THE SIDE OF THE PATIENT'S FACE, AND THE LIDS SHOULD BE OPENED AS WIDELY AS POSSIBLE.

IS IT really true that doctors do not believe in the old accepted custom of keeping children with measles in a darkened room? This is one question mothers are asking their family physicians today.

In practically every home wherein a case of measles is under care and treatment, the physician finds that the sickroom is darker than the darkest cellar; the windows are closed tightly; the window shades are drawn completely down to the sill, and in some instances double window coverings are used to shut out the light. Incidentally, the fresh air is also shut out, as evidenced by the musty, stale and sweaty odor, mingled with an aroma of food and the usual familiar smell, indescribable yet characteristic of the old rag shop of boyhood days.

"A neighbor warned me," the mother tells the doctor, "as did also my own mother and my mother-in-law, about the danger of allowing sunlight or any kind of light in Junior's bedroom during the measles."

"That is partly correct," the doctor replies, "but you have overexaggerated the danger of light to such an extent that you have even excluded the fresh air from the bedroom."

EVERY child with measles has an acute catarrh resembling pink-eye in which there is inflammation, swelling and discharge from the eye. As in every inflamed eye, there is unusual sensitivity to light, but it is a fallacy to shut out every ray of light under the impression that light will impair the eyesight.

in Measles

The discharge itself, which contains mucus, white corpuscles and bacteria, is capable of doing the greatest harm to the eyes. The care of the child's eye is not primarily to shut out light but to keep the eye clean and free from bacteria and discharges, so that these do not injure the cornea of the eye. To give the child that protection the eyes should be thoroughly cleansed and the window shades should be partly lowered to keep out the direct sunlight, but by no means should all the light be kept out.

Considering the number of cases of measles throughout the country each year and also considering that practically 90 per cent of all persons contract measles, it is surprising that there are relatively few eye complications in measles which cause serious impairment of vision. Ulceration of the cornea may occur, but it is rare.

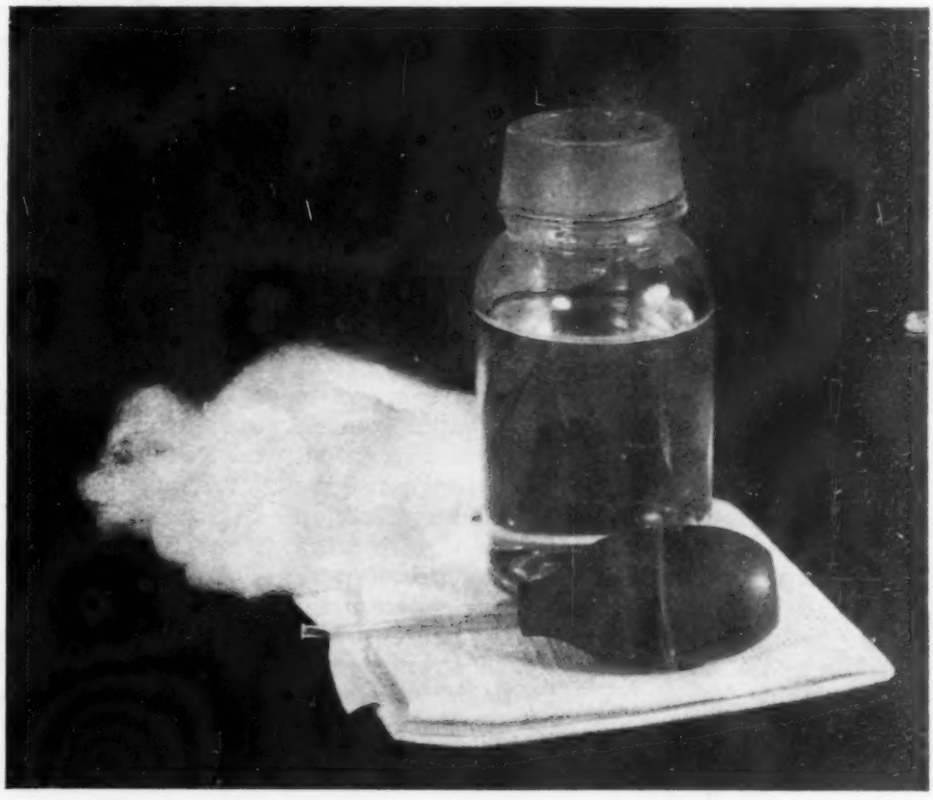
PROPER hygiene of the eyes during measles includes the following precautions:

Sterilize a boric acid flush bottle by boiling it. To prepare boric acid, first boil a pint of water. Place 2 level teaspoonfuls of powdered boric acid in a medicine glass, and add a little of the boiled water to make a paste. Add this paste to the boiled water, and allow the solution to cool. Filter it through sterile cotton, placed in a glass funnel, into a bottle which has been sterilized. Then fill the flush bottle with boric acid solution. The solution should be warmed before being used. This may be done by placing the flush bottle in a pan of hot water or placing the flush bottle under the hot water spigot. Before using the solution, test its warmth by dropping some on the back of the hand.

Place a rubber sheet on a small pillow and cover the sheet with a turkish towel. Place a large wad of cotton on the side of the child's face, holding it with the right hand for the left eye and with left hand for the right eye. With the thumb and index finger of the same hand, open the lids as widely as possible. This should be done with the aid of a subdued light, placed in another part of the room. During the day the eye flushing may be done under the natural illumination from the window with shades partly drawn.

FLUSH the right eye, using two or three bulbs of boric acid solution and catching the fluid with the cotton held against the side of the head. Then reverse the position of the hands, and flush the left eye.

Repeat these flushings four times daily during the period in which the eyes are inflamed. The convalescing child may wear tinted glasses or the shades may be partly lowered as in any other illness. If the head of the bed is toward the window, the light will not strike the eyes directly.



PROPER HYGIENE OF THE EYES DURING MEASLES INCLUDES THE USE OF BORIC ACID SOLUTION. THE SOLUTION SHOULD BE KEPT IN A STERILIZED BOTTLE AND SHOULD BE ADMINISTERED, WARM, IN A STERILIZED BORIC ACID FLUSH BOTTLE.

Your Child's Face and Future

By

JACQUES W. MALINIAK

"MR. AND MRS. JOHN SMITH announce the birth . . ." The story is old, but for each father and mother it holds new wonder. Countless novels have tried to express the solemn ecstasy of parents as they look on their creation and find it fair. But how can one describe the despair which grips the parents when a conspicuous facial deformity mars the baby whose arrival they have awaited with such high hopes?

"That schoolgirl complexion" is an entirely modern simile. Prior to the era of advertising slogans the baby's skin set the standard, and so it seems the more deplorable when the pink and white of an infant face is disfigured by an ugly birthmark! Port wine marks, which derive their name from their reddish-brown color, are among the most conspicuous of these. They may be limited to a small region or may extend over the whole face. The method of eradication depends on the size and location of the blemish. A small spot may be removed by simple excision of the pigmented area, and the resultant defect is covered by bringing together the edges of the surrounding normal skin. If the imperfection is too large to permit this or if it is located around the nostrils, mouth or eyelids, where simple excision is apt to produce traction on the adjoining parts, grafting may be necessary to replace the removed tissue. Extreme cases too extensive for surgery can be improved by bleaching with radium or carbon dioxide snow.

The mole family supplies a wide variety of skin deformities. The mole is one of the commonest birthmarks and is caused by an overgrowth of part of the skin structure. It may be flat or elevated, warty or fatty, with or without hair. In any case it is a distinct disfigurement if it attains noticeable dimensions. What though Hafiz offered Bokhara and Samarkand for the mole on his beloved's cheek? To most parents a mark of any size on their baby's face is a disfigurement to be removed. The method of removal, whether by electrolysis, surgery or caustic applications, depends on the nature of the mole and its extent. Careful differentiation must be made between the innocuous warty and hairy types, on the one hand, and the soft, fleshy varieties that have a tendency to degenerate and become malignant. The latter should be removed operatively, with surgery going well beyond the limits of the growth.

OVERDEVELOPMENT of the blood vessels in the skin, or of the lymph ducts, produces a highly disfiguring tumor which may occur on any part of the face but is most common on the forehead, cheeks, lips and eyelids. These hemangiomas and lymphangiomas, as they are respectively called, increase rapidly in size. They should be removed, if possible, before they start to grow. Once they are permitted to reach large proportions, their destruction leaves a defect which must be provided with new skin or filled in with fatty tissue to reestablish the normal contour.

Equally unsightly disfigurements may be acquired in the form of scars. At the risk of

pedantry, it is well to define this often abused term before employing it further. A scar is new connective tissue replacing normal tissue that has been lost through surgery, accident or disease. If the injury is extensive enough, it may cover almost the entire body, a frequent happening in childhood burns.

Many primitive tribes go to great lengths to promote scarring for decorative purposes. Modern civilized man is equally zealous to have conspicuous scars removed. Much unsightly cicatrization could be prevented by adequate precautions in childhood.

The ugliest and most common scars that the plastic surgeon is called on to remove are the results of burns in early life. Most of these are preventable. Playing with fire is not the only way to get burned. Caustics left within easy reach of inquisitive fingers, a pail of boiling water on the floor or a hot kettle at the edge of table or stove may leave permanent disfigurement and disability in their wake. Eternal vigilance on the part of parents and nurses is truly the price of a child's safety.

Once the damage has been done, whether from a burn, a cut, an automobile injury or lacerations from any other cause, the only remedy is immediate, expert attention. The amateur first aider cannot make up in zeal what he lacks in knowledge. His vigorous ministrations are responsible for almost as many ugly scars as the mishaps that bring his talents into play!

The removal of a scar does not differ materially from the eradication of any other skin deformity. If the scar is small enough, simple excision is the method of choice. In extensive scarring, skin grafts must be used to replace the excised tissue.

IT FREQUENTLY happens that a scar which is not noticeable in itself produces a conspicuous deformity by traction on the nostrils, mouth or eyelids. Here functional reasons support the cosmetic argument for early repair. When the structures involved are prevented from performing their normal duties, they fail to develop properly. The disfigurement increases as the face grows, and the child is exposed to unpleasant and even serious complications. Prompt removal of excessive and disabling scars restores the normal appearance, which is every child's birthright, and permits a symmetrical development of the face.

The same considerations govern the treatment of nasal fractures in childhood. It is a prevalent fallacy that breaks in the nasal bones should be left undisturbed until maturity. There are no grounds for this misconception, and it cannot be too vigorously combated. To postpone correction exposes the child to a loss of normal function and a maldevelopment of the nose which will ultimately add to his deformity.

The fractured nose is a common disaster of childhood. First attempts at walking are attended by many falls, and the games and pugnacious tendencies of later childhood add to the likelihood of nasal injury. Every accident involving the nose should suggest to the parents the possibility of fracture. If a break has occurred, the bones should be set as promptly as if an arm or a leg were in question.

Most congenital malformations of the nose do not manifest themselves until the child has reached puberty. Gross disfigurements, such as total or partial loss, are apparent at birth. Fortunately, the distress which such deformities occasion in parents is an incentive to early repair. Once the child is aware of his disfigurement, the postponement of reconstructive procedures places him at a functional disadvantage and predisposes to the development of grave psychologic disturbances as a result of the curiosity and taunting of other children.

OTHER congenital facial imperfections sink into insignificance beside the repellant aspect of a cleft lip. Because of a prenatal failure of union the upper lip presents a fissure which may extend into the nostril. Often the roof of the mouth has not joined properly either, and a cleft palate adds to the horror of the harelip. The ugly picture is completed by a flattening of the nostril, which almost invariably accompanies the deformity of the lip.

Approximately 1 child in every 2,500 is born with this repulsive disfigurement, the cause of which is still unknown. Popular superstitions attribute this deformity, without foundation, to an accident or a fright during pregnancy, but it is more probably due to some hereditary factor, not a disease, that is not yet clearly understood.

No congenital malformation of the face calls for as early repair as cleft lip. By the age of 6 weeks the infant is physically equipped to withstand the strain of operation, and surgical reconstruction should not be delayed. Correction of the deformity at this time, including repair of the flattened nostril, yields an excellent cosmetic result and permits the nose and lip to develop normally.

Closure of a palatal cleft is deferred until the age of 18 months, when the baby is better able to sustain the more extensive surgery. If an accompanying cleft lip has been previously corrected, the pressure exerted by the closed lip has already somewhat reduced the breach in the palate. The remaining fissure is joined surgically.

Unless the palatal cleft is closed before the child begins to talk, serious speech defects result, and correction for these defects requires prolonged training. Even large cities are not adequately supplied with facilities for this type of special instruction. In small communities

EARLY REPAIR OF THE HARELIP YIELDS EXCELLENT COSMETIC RESULTS, PERMITS THE NOSE AND LIP TO DEVELOP NORMALLY AND AVERTS PAINFUL COMPARISONS IN LATER YEARS.

the deplorable lack of any facilities at all imposes an insurmountable handicap on those unfortunate youngsters for whom repair has been delayed, for one reason or another, beyond the prescribed age.

It is never too late for improvement. When, because of ignorance, indifference or lack of opportunity, a child has been allowed to go beyond infancy with his deformity uncorrected, reconstruction should be attempted as early as possible in later life. Distinct gains are possible at any time, even though the cosmetic and functional results of more timely surgery are not equaled.

In the extreme cases of double cleft lip and palate, in which the malformation involves both sides, a series of operations is necessary to effect a repair. A remarkable transformation is accomplished, even though a perfect reconstruction is not always possible in these more extensive deformities.

The horror inspired in parents by a cleft lip or cleft palate in one of their children should be mitigated by the knowledge that timely repair will eradicate almost all traces of the malformation. The same assurance is forthcoming when the mouth is partly destroyed by injury or disease. Even the minute artistic details of the configuration of the lips can be reproduced.

NATURE is as capricious in her mistakes as in her productive experiments. To normal parents who have no reason to expect anything but normality in their offspring, it is an acute shock to have a child born with an ear missing in whole or in part. The external deformity in such cases is often paralleled by a malformation of the internal ear. If the opposite side is unaffected, the child is assured of sufficient hearing for all practical purposes. Reconstruction of the external appendage offers a complex problem. The ornate configuration of the outer ear makes it one of the most difficult organs to reproduce. A successful repair requires boundless patience and is accomplished in a number of operative stages. Cartilage taken from the ribs supplies the rigid framework. The skin of the neck is utilized for the irregular folds which give grace and variety to the pretty shell-like structure.

However, though the ear is difficult to rebuild, the nose has been the source of some of plastic surgery's most notable successes. The central location of this organ on the face and its outstanding position allow it to dominate the countenance to no small degree. A comedian grows famous on the strength of his proboscis. One of the greatest romances of all times hinges on a nose. Is it a wonder that adolescence scrutinizes this important feature closely and builds daydreams or tragedies out of its size and shape?

A wise parent will not treat a child's suffering over a misshapen nose lightly. If the deformity is negligible, an excessive reaction indicates a psychic and emotional instability which an understanding adult attitude can often overcome. An effort to build up the child's morale and distract him from his oversensitive consciousness of disfigurement may help to prevent grave maladjustments. On the other hand, in the event of a conspicuous malformation, relief should not be unduly delayed. By the sixteenth year the nose has attained its full growth, and reconstruction can be undertaken without any threat to normal development. The correction of a striking imperfection at this time allays the intense suffering of adolescence and helps to restore a normal psychic balance. It is not necessary to point out the social and economic opportunities that depend on a pleasing appearance.

AN EXTREMELY satisfactory feature of nasal plastic operations is that no visible scars mar the end-result. Thanks to the natural elasticity of the skin, the incisions are made inside the nose. The external skin covering takes the exact form of the underlying framework whether the latter has been diminished or enlarged.

Seeming deformities of the mouth are often produced by faulty developments of the upper jaw. When this structure protrudes, thrusting the teeth too far forward, an otherwise charming face is effectively spoiled by the ugly conformation which results. The cosmetic aspects of this condition, important as they are, are outweighed by its dental significance. As a consequence of faulty closure of the upper and lower teeth, proper mastication is impossible, and there looms a whole train of unpleasant compli-

cations which can be averted only by suitable dental treatment. Orthodontia is the branch of dentistry that deals with abnormalities of this type. It obtains its best results in early childhood, for once the bones are fully developed, little can be done. Timely orthodontia frequently does away with the need for surgical repair in later life.

Too much stress cannot be laid on preventive measures. The asymmetry resulting from facial paralysis, which sometimes follows operations on the ear, can be improved to some extent by reparative surgery. How much better it would have been if early, efficient treatment of the infection had prevented the onset of the palsy! Similarly with burns, where prolonged, tedious repair is the price of a moment's carelessness. Watchfulness against bad habits is another form of insurance against facial deformity, which is too often neglected.

By some inherent perversity the human race is much quicker to acquire bad habits than beneficial ones. Babies are no exception to the rule; and mothers must be continually on guard against tendencies which will leave permanent marks on the little ones who are so unconscious of the harm they are doing themselves as they blissfully suck their thumbs or burrow their heads more deeply into comfortable pillows.

THUMB sucking is one of the earliest and worst habits of infancy. The continual pressure on the structures of the mouth and chin is highly deforming; teeth become irregular, and the jaw is pushed out of shape. Other sucking habits produce the same effect. The nipple should never be allowed to stay in the mouth after feeding is over.

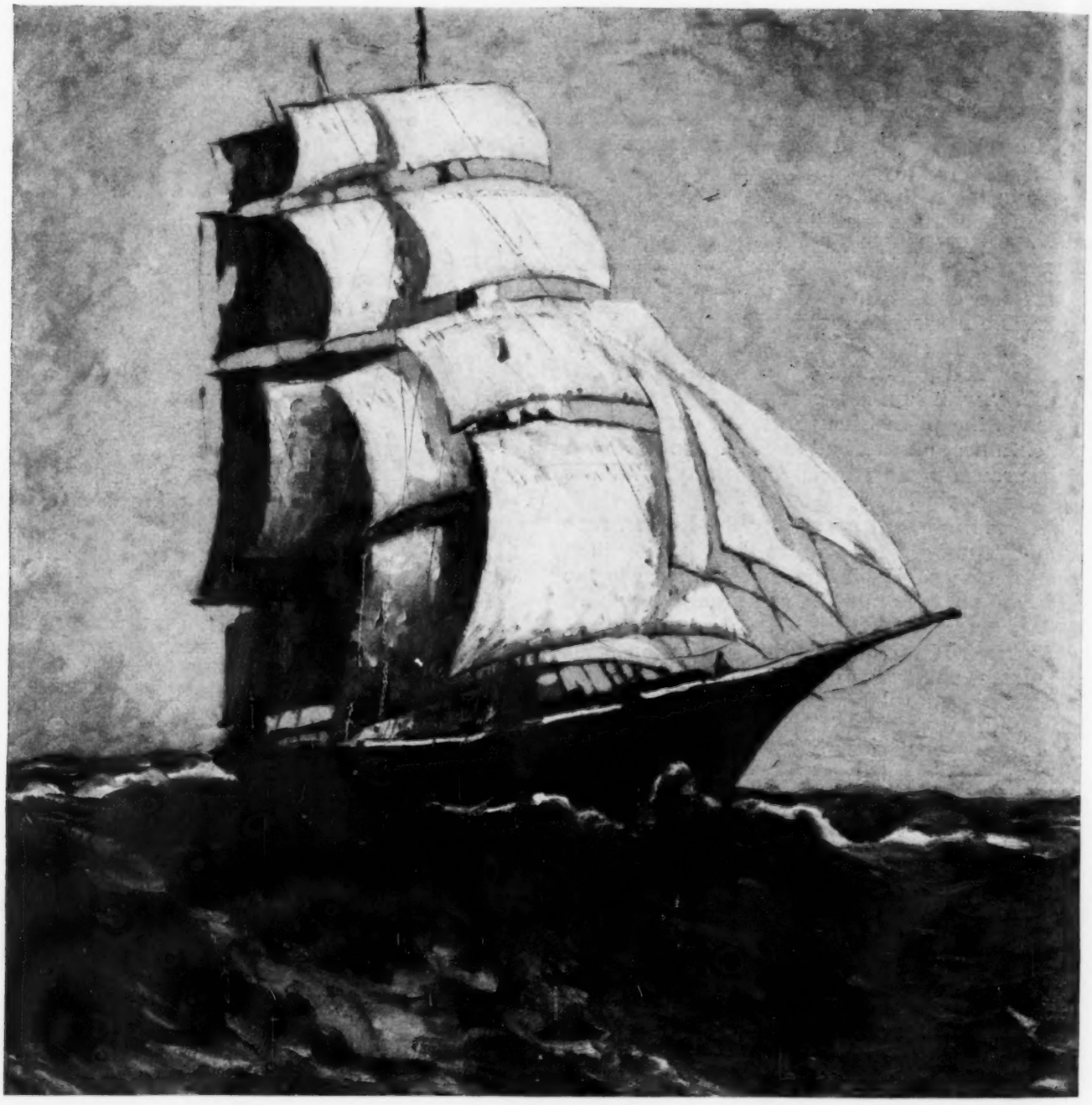
Next to thumb sucking, the open mouth is one of the commonest maternal bugbears, and rightly so. The muscular tone of the lower jaw is lost, and a deficient chin remains as a perpetual monument to mother's reluctance to say "don't." If there exists a genuine reason for mouth breathing, such as enlarged tonsils and adenoids or a nasal deformity, the mechanical obstruction must be removed before the baby will learn that a closed mouth is a physical as well as a moral virtue. When habit is to blame, persistent reminder is the only remedy.

Parents' ways must often be reformed to safeguard the infant face. Most mothers make it a religion to see that the baby's ears are flat against his head when he is put into his carriage or crib. Few mothers appear to realize that the rest of the face must be protected against adverse pressure too. Continued lying in one position may push the chin or cheek-bones out of position, or a pillow may press against a particular part of the face with similar results. The mother who is attentive to these seemingly trivial details is rewarded by the normal contour of her child's face as it develops.

THE FRACTURED NOSE IS A COMMON DISASTER OF CHILDHOOD. EVERY ACCIDENT INVOLVING THE NOSE SHOULD SUGGEST THE POSSIBILITY OF FRACTURE. IMMEDIATE, EXPERT ATTENTION SHOULD BE GIVEN, FOR POSTPONEMENT OF CORRECTION MAY ENTAIL MALDEVELOPMENT AND A LOSS OF NORMAL FUNCTION.

The older children grow, the more mischief they can wreak on their innocent countenances by bad habits. Junior acquires a "bulldog" chin by continually thrusting his lower jaw forward. Jane's teeth are too short and pushed out of normal position from biting everything she touches. Studious Richard has destroyed the symmetry of his face by constantly using his hand as a prop when reading. Peggy's front teeth have failed to erupt completely because she bites her tongue. Look about at any group of children at play, and you will see evidence of similar faults. Prominent upper teeth proclaim that one youngster bites his lower lip. If the upper lip is the victim, a deficiency of the front portion of the jaw tells the tale. Robert's face is lopsided from a nervous trick of sliding his lower jaw to one side. Mary's cheek and chin reveal that she rests her head on her shoulder and arm while studying. There are almost as many habits as there are children. Any one of them, if allowed to go unchecked, may produce a conspicuous deformity. Plastic surgery can often repair the ravages; maternal vigilance prevents them.

IN ALL fairy tales, when friendly spirits assemble about the cradle of a new-born child to bestow their treasures, beauty is one of the most prized gifts. Each mother covets it for her child. If it is not given to every one to be beautiful, every baby is entitled at least to a normal face. Wise precautionary measures in infancy and childhood go far in preventing deformity. When a noticeable malformation exists, timely surgical repair, in most cases, will correct the abnormality and permit the child to face the stringent competitions of life without the handicap of a gross disfigurement.



The Mosquito

Chapter XII of
OUR PARASITES

THE TERMS mosquito, gnat and midge are nothing more than synonyms for one and the same insect. It is as ubiquitous as the poor and so varied that some thousand different species have been identified. They may all be nuisances, but only a few are dangerous. There are plenty of harmless, vegetarian species, whose dietary is innocent of blood, let alone human blood. Their depredations are limited to stealing nectar from flowers, and their lives are an uninterrupted cycle of bucolic happiness.

Other species are predatory and bloodthirsty. In the anopheline group, which includes more than a hundred different species, there are several which spread malaria. Members of another group are the vectors of yellow fever. Other diseases conveyed by other species are filariasis and dengue, or breakbone fever. The diseases for which the mosquito is responsible are mainly tropical, and it has been estimated that one fourth or more of all sickness in the tropics can be traced to this source. This estimate, however impressive it may be, is not so astounding, and in a sense not so humiliating, as the fact that in the struggle for a place in the sun, the mosquito has kept man out of a large

THE MOSQUITO, A HARDY ENTERPRISING COLONIST, IS READY TO EXPLOIT ANY AND EVERY CHANCE TO TRAVEL. A COMFORTABLE MODE OF TRAVELING IS BY SHIP, AND IT IS BY THIS MEANS THAT CERTAIN MOSQUITOES HAVE SUCCEEDED IN REACHING AUSTRALIA.

By Claude Lillingston

share of the otherwise habitable portions of the earth.

The mosquito undergoes a complete metamorphosis from egg to larva, pupa and sexually mature adult. The adult mosquito's head is fitted with a long, piercing sucking tube, through which the female mosquito draws the blood of her victim. The corresponding tube of the male is too rudimentary and weak to pierce the human skin; and at one time it was thought that the male never ate anything, as no food had been found in his stomach. However, comparatively recent experiments have shown that the male can be induced to make a hearty meal on cherries and other fruit. Dr. L. O. Howard has even convicted him of taking to beer.

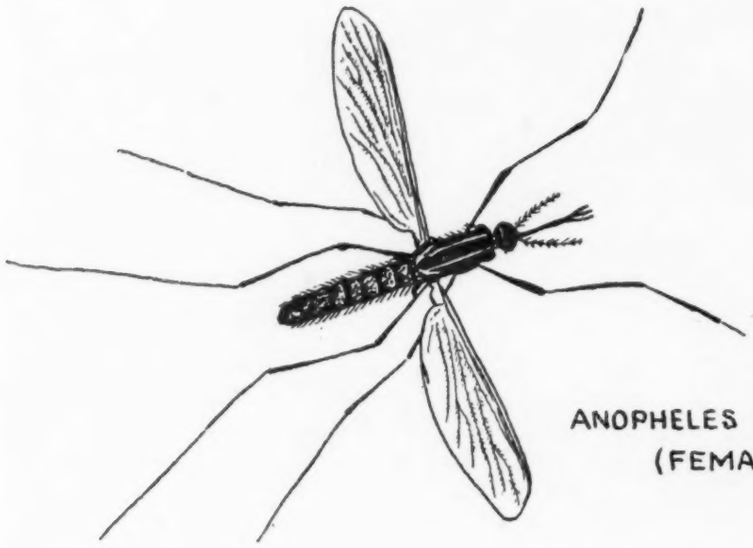
Other structures projecting from the heads of both sexes are the antennae, which carry the mosquito's auditory apparatus. It is with its antennae, then, that the mosquito hears the buzzing of its mate in the dark; and it may be some slight consolation to the would-be sleeper who is kept awake by this ominous noise that he is listening to a love lyric voicing the ardent emotions of a young mosquito. There is still some uncertainty as to the exact mechanism yielding this sound.

The female lays her eggs on water, damp mud, leaves and the like. When the larva hatches out, it is harassed in this short stage of the mosquito's existence by its many natural enemies. If it succeeds in circumventing them, the larva passes into the pupal stage, which lasts from five to twelve days. During this stage, it grows rapidly. In order to do so, it feeds ravenously and constantly on minute organisms in the water, wriggling frantically about in its search for food.

When the pupa is ready to hatch out, it rises to the surface of the water, and its shell or skin splits. The new-born adult mosquito then deliberately walks out of its shell, which it uses as a raft on which to stretch its legs and wings in preparation for its first flight. If a puff of wind upsets the raft before the wings have curled out fully, the mosquito's saga comes abruptly to an end.

AMONG the mosquito's many natural enemies are parasitic worms which prey on it in its larval and pupal stages. The larva is also preyed on by a minute tick. The common goldfish and the silverfish also include the larva in their dietary. Then there are certain water beetles and the larva of the dragon fly which eat the larva and pupa of the mosquito. When and if it attains to adult life, it encounters new enemies, including the adult dragon fly as well as birds and bats. One of its most curious enemies is a fungus the threads of which act like the tentacles of an octopus, holding the mosquito in their deadly embrace. Countless experiments have been made in attempts to enlist these and other natural enemies of the mosquito in a well organized campaign against it; the systematic breeding of fish belonging to the Gambusia family has done much to keep down the mosquito plague.

The mosquito usually feeds by night, but all the thousand odd members of the family do not abide by this rule; and while some malaria-carrying mosquitoes begin to dine shortly before sunset, others prefer the middle of the day, or at any rate they do not object to a midday meal if they find it offered them. It follows that the mosquito net used only at night may fail to avert



ANOPHELES MOSQUITO
(FEMALE)

LARVA
OF THE ANOPHELES
(GREATLY ENLARGED)

all the mosquito-borne diseases. Indeed, in some localities the yellow fever mosquito is known as the day mosquito, for it bites in daylight.

Some mosquitoes are great travelers, while others are incorrigible stay-at-homes. Of course, much depends on the facilities for travel. A high wind, for example, may carry a mosquito for miles, whereas its range of flight would normally have been limited to a few hundred yards. Certain long-range mosquitoes, bred on salt marshes, have been credited with a flight of more than 50 miles. A more comfortable, if less independent, mode of traveling is by ship, and it is by ship that certain mosquitoes have succeeded in reaching Australia. The advent of the airplane has provided the mosquito, including disease-bearing members of the family, with new and hitherto undreamed-of openings. The mosquito is, in fact, a hardy and enterprising colonist, ready to exploit any and every chance. If it cannot get there as an adult, it sends an egg or a larva as a substitute.

In temperate and cold regions, the mosquito can keep alive in the winter in any of the phases of its life cycle; the egg of one species, the larva of another, and the adult stage of a third will survive the coldest of winter months. In the case of some species, only the female adult, who takes up her winter quarters in some dark and sheltered corner after having been fertilized, survives the winter. Having contributed his part to the propagation of the race, the comparatively delicate male mosquito perishes miserably with the first cold snap. The larva of some species is so hardy that it will survive in water covered by 2 inches of ice.

The campaign against the mosquito has yielded an almost infinite variety of devices, good, bad and indifferent. The scope of this paper does not allow of even the enumeration of the good, not to mention the indifferent. The mosquito is vulnerable in any and all of its four stages of life, and only its remarkable fertility has saved it from extinction long ago. Whatever the stage of its existence, the mosquito is dependent on water; this dependence has been exploited in many areas by the ruthless and systematic suppression of stagnant water, however tiny and humble the vessel holding it may be. Drs. L. O. Howard and F. C. Bishopp have told how, on one occasion, a veritable plague of mosquitoes was traced to a case of empty bottles allowed to remain in a back yard for some weeks in midsummer. Only half a bottle may contain enough water to yield literally thousands of mosquitoes.

Although all mosquitoes must have water in which to live and breed, they differ widely in their preferences for the vessels containing it. Some species breed only in the damp holes of trees, scorning the moisture to be found in other receptacles. There are species which specialize in crab holes as the cradle of their race. There are some mosquitoes which lay their eggs on the surface of the water, with nothing to which to anchor them. Still other species breed only in the pools left by melting snow and they are, accordingly, limited to one generation a year. In addition to all these species, which are fussy and particular in choosing their birthplace, there is a large group in which the members do not exhibit any such discrimination. As long as it is moist, anything will do, provided there is comparative calm and rest, for the mosquito abhors motion in the medium in which it finds itself during its evolution from one stage to another. The amateur entomologist without time or opportunity to study the breeding idiosyncrasies of each of the thousand odd members of the mosquito family would do well to regard every stagnant collection of water as a potential breeding place of mosquitoes and deal with it accordingly.

It is extraordinary how numerous and varied such potential breeding places are when one comes to look for them. There is the chicken

pan in the poultry yard, the water cup of the grindstone, urns in cemeteries, fonts in churches, the footprints of cattle, flower vases and water pitchers in unused guestrooms, tanks in water-closets, fire buckets and water barrels, and even the broken bottles cemented to the top of a stone wall for the discouragement of the prospective burglar. Unused wells and cesspools, if their cement roofings are cracked, are also much beloved haunts.

If the ornamental pond in the garden is also neglected, it may become a productive source of mosquitoes, but in many cases the owner may succeed in retaining his pond and discarding his mosquitoes by taking certain elementary precautions. He should not allow the grass to grow down to the edges of the pond; nor should he grow broad-leaved water plants on its surface, for such vegetation gives the anchorage that the mosquito needs. The pond can be further cleared of mosquitoes by stocking it with various species of top minnows which feed on the mosquito larva. There are many other aquatic creatures which prey on the mosquito larva or on the adult, but it is doubtful whether any are so popular in the decorative pond as goldfish.

Another device by which the hospitality of stagnant water can be denied mosquitoes is by covering its surface with some unpalatable substance. Oil serves this purpose best, and the most satisfactory oil is ordinary petroleum. It is available everywhere and is comparatively cheap. An ounce of kerosene to every 15 square feet of surface is a suitable dosage which will not require repetition for ten days, provided there is no wind. The iridescent film of kerosene may be only temporarily blown off the center of the pond, coming back to it with a change in the wind and overwhelming the larvae reaching maturity. It is not only the larva and the pupa which are destroyed by this film, but also many an unwary adult mosquito that alights on it by mistake.

Stagnant water can be successfully treated with powders as well as with oil. A favorite dusting powder is paris green mixed with road dust or powdered soapstone; 10 per cent by weight of paris green should be used in the mixture. This is powdered over the surface of water to kill the larva of Anopheles, which feeds at the surface. Such dusting operations have been carried out successfully on a large scale from airplanes, but the individual householder must content himself with a more modest vehicle for his dusting powder.

Powders can be used to harass the mosquito in another way. Persian insect powder is obtained from the finely ground flower heads of the genus Pyrethrum and is generally used dry. It is puffed or blown into the air of a room, or burned at night, a little pyramid of the powder being lighted at the top and allowed to burn slowly. The rate of combustion may be regulated by various devices; the powder may be moistened and molded into small cones, which burn more slowly than the dry powder, or it may be heated on a metal screen over a kerosene lamp or flamed in a burning gas jet. It has been calculated that 1 pound of such powder burned for every 1,000 cubic feet of space will rid a house of mosquitoes, causing them to fall to the ground stupefied. The main drawback to such fumigation is that human beings, as well as mosquitoes, object to it in high concentrations; it is not always easy to produce an atmosphere that human beings can tolerate with comparative comfort and that will be highly uncomfortable for mosquitoes.

Another useful principle in the campaign against the mosquito is the application of protective liquids to the face and hands. Spirits of camphor, pine oil, oil of pennyroyal and oil of citronella are among the best known protective liquids. A single application is effective for several hours but not for a whole night. A useful combination is 2 parts of oil of citronella, 2 parts of spirits of camphor and 1 part of oil of cedar. The more volatile a protective liquid, the more potent are its effects, but also the more short-lived, and one cannot lie awake all night merely to renew the application. This difficulty can be circumvented to a certain extent by the use of a mixture that does not evaporate easily. Such a mixture can be obtained by adding 4 parts of liquid petrolatum to 1 part of oil of citronella.

The traveler in the tropics soon becomes an expert in mosquito veils and nettings. All depends on the size of the mesh. Eighteen meshes to the inch, or sixteen if a heavy grade wire is used, will keep out the mosquito, whereas the smaller members of the mosquito family will slip in through a screen that has fourteen meshes to the inch. Painting wire screens with kerosene or oil of citronella is to be recommended when the owner harbors doubts as to their purely mechanical efficiency.

Even after a mosquito has slipped through every defense and scored a bite, much can be done to alleviate its effects. One of the most satisfactory applications to the punctured wound is the moistened end of a piece of ordinary soap rubbed in gently. The patient who prefers to go further afield for his remedies may choose ammonia, alcohol, glycerin or tincture of iodine. Holding the itching spot near the hot chimney of a lamp is also said to give instantaneous relief. If the patient is in a malarial area, he will do well to master the comparatively simple technic of quinine medication. However, to be effective, it must be methodical, for there is little to be gained by taking quinine in a haphazard manner.

[Note.—This is the concluding article of Dr. Lillingston's series. "Our Parasites" began in the June 1934 issue.]

JOSEPH L. BAER Discusses Prenatal Care

PRENATAL care is the medical supervision of pregnant women throughout pregnancy. It must be sufficiently intelligent, conscientious and frequent to detect and control conditions which might otherwise result in harm or death to the prospective mother, child or both. While, in the strictest sense, medical supervision of the expectant mother is termed antepartum care, nevertheless care of the mother necessarily involves care of the child and is therefore commonly referred to as prenatal care.

Who should receive prenatal care? All pregnant women whether in their first or subsequent pregnancies should receive this care.

How many actually benefit by prenatal care? All those who receive this care as it should be given will benefit in the following ways:

They are relieved of all anxiety. The importance of this aspect of prenatal care cannot be overemphasized. It should mean much to the peace of mind of the prospective young mother whose ears are filled with tales of disaster, brought to her by well meaning but stupid friends. And it should mean just as much to the solicitous but helpless husband.

Adequate prenatal care helps to keep well women well. Fortunately this group includes most pregnant women. Such ailments as they have are insignificant. They may or may not require treatment, but the decision should be made by the physician in charge. A headache, even a persistent headache may mean merely constipation, or it may be a simple migraine, or it may be the forerunner of convulsions. This is for the doctor to decide.

Most important of all, adequate prenatal care will sift out those women in whom complications are developing or who are stumbling blindly into a stormy or impossible labor. This is the group the doctor must reach. These are the women for whom the doctor can do so much if they will but let him. Complications can develop or exist in the woman who is seemingly well. That is why all pregnant women should have adequate attention.

Who is qualified to render this kind of prenatal care? All competent physicians who take their responsibilities seriously and keep abreast of the developments in obstetrics are qualified to supervise the pregnancy. Some physicians make this their special work. A woman's selection of her obstetrician is second in importance only to the selection of her husband. She should investigate, consider well and when she has made a deliberate, not a casual, choice of her obstetrician, she will have bought the best there is in health insurance and life insurance for her baby and herself. She must follow orders. If she is well the orders will be few and far between. If she is not well she knows that she will be protected.

A WOMAN'S SELECTION OF HER OBSTETRICIAN IS SECOND IN IMPORTANCE ONLY TO HER SELECTION OF HER HUSBAND. SHE SHOULD INVESTIGATE, CONSIDER WELL AND WHEN SHE HAS MADE A DELIBERATE, NOT A CASUAL, CHOICE OF HER OBSTETRICIAN, SHE WILL HAVE BOUGHT THE BEST THERE IS BOTH IN HEALTH INSURANCE AND IN LIFE INSURANCE FOR HER BABY AND FOR HERSELF.

for the Sake of Mother and Child

Most doctors provide their obstetric patients with printed instructions. These cover most of the points which are likely to arise. When she is in doubt the patient should ask her doctor. It cannot harm her to listen to the willing multitude of lay advisers of her own sex, but she should consult her doctor and follow his instructions.

What are the details of adequate prenatal care? A physical examination is essential. At the first examination the existence of a normal pregnancy is determined. Variations such as tubal pregnancy or an adherent backward displaced uterus may be found and safely treated at this time. The measurements of the pelvis are important in two ways: in general they indicate whether the pelvis is too large or too small or whether it has been deformed by rickets, accidents or birth anomalies; and in particular, pelvic measurements can determine whether the inlet and the outlet of the pelvis are normal or unusually small. Such knowledge in advance of labor sometimes means the difference between a live baby and a dead baby and the difference between a mother restored to good health or a mother partially disabled. The condition of the heart, the blood pressure, the kidneys, the urine and the thyroid gland should be determined. The patient's weight should be registered; the average gain throughout pregnancy is a total of one fifth of the body weight.

Typical printed instructions for the pregnant woman are contained in the following list of general rules:

Visits.—It is essential to go to the doctor's office every four weeks the first seven months and once every two weeks thereafter. Take a written list of questions to avoid forgetting any. Make note of the first day of feeling life.

Clothing.—Wear comfortable clothing and avoid abnormal constriction, round garters and high heels. Wear an ordinary girdle or corset as long as it is comfortable. Many patients are more comfortable without any abdominal support. Maternity corsets are suitable for the second half of pregnancy.

Exercise.—Exercise daily. Walking in the fresh air is the best form of exercise. Dancing is permitted, but all forms of strenuous exercise are dangerous. Avoid long journeys by auto, train or steamer. You may drive a car during the first six months if you are an experienced driver.

Rest.—While moderate exercise is important, adequate rest is equally important. Obtain a full night's sleep and, if possible, an additional hour of rest every afternoon. If you are unable to sleep, take a hot drink, such as milk, tea or cocoa, before retiring. If this fails, report for instructions.

Bathing.—Take a warm tub bath or shower daily. Avoid cold showers and stop tub bathing

TALKS AND ARTICLES ON PRENATAL CARE HAVE BECOME ALMOST A COMMONPLACE; BUT IT IS EQUALLY IMPORTANT TO REALIZE THAT POSTNATAL CARE IS VITAL TO THE PATIENT'S PERMANENT HEALTH. FOR HER OWN SAKE AS WELL AS FOR THE WELFARE OF HER CHILD THE MOTHER SHOULD CONSULT HER DOCTOR FREQUENTLY AND SHOULD CONSCIENTIOUSLY FOLLOW HIS INSTRUCTIONS.

two weeks before the baby is expected. Be most careful in getting in and out of the tub.

Nipples.—Cleanse the nipples daily during the second half of pregnancy. Ask for nipple lotion and instructions.

Diet.—Eat moderately at all times. Eat meat, poultry or fish only once daily. One or two eggs are permissible in addition. Raw fruits and green vegetables should constitute a large part of the diet especially during the last three months of pregnancy. Drink eight glasses of water daily. Coffee or tea should be taken only once daily. Highly seasoned foods, spices, large amounts of salt, and alcoholic beverages are forbidden. Do not smoke more than ten cigarets daily. It is not necessary to drink large amounts of milk.

Bowels.—A daily free evacuation is most essential. A regular habit plus the diet as outlined is usually sufficient. If insufficient, take cold mineral oil, 1 or 2 tablespoonfuls each morning and evening after meals. The exact amount must be regulated by need. A tablespoonful of milk of magnesia may also be taken at night. An occasional low warm water enema or suppository is harmless. Avoid all other laxatives. When cleansing oneself after an evacuation or urination, it is advisable to cleanse the parts by wiping backward, never forward, in order to avoid contamination of the genitals. This applies at all times whether or not pregnancy exists.

Urine.—The urine must be examined regularly. Every other week submit a morning specimen in a clean 3 ounce bottle, marked with name and address. During the last six weeks, specimens of urine must be sent twice each week.

Dentist.—See your dentist early in pregnancy. Inform him of your condition, and have all necessary dental work attended to promptly. Teeth with cavities should be filled. Infected or abscessed teeth may be extracted. There is no objection to either a local or a general anesthetic for extractions. You should see your dentist at least every two months throughout pregnancy.

Marital Relations.—These relations are unsafe during the week in each month when menstruation would have occurred as they may provoke abortion. During the last two months, marital relations are dangerous and must be avoided.

Douches.—These are prohibited throughout pregnancy.

Unusual Symptoms.—Report promptly any of the following symptoms: severe or obstinate nausea or vomiting, severe or persistent headache, prolonged constipation, disturbances of vision, swelling of the hands or feet or about the eyes, discharge, vaginal bleeding of any type irrespective of amount, and any of the signs of labor.

Signs of Labor.—These signs may be described as follows: 1. Intermittent pain starting in the lower part of the back and radiating to the lower front portion of the abdomen. These pains occur regularly and rhythmically at intervals of from ten to fifteen minutes. They last from ten to forty seconds and gradually increase in frequency, duration and severity. 2. Loss of water; either an abrupt gush or a steady loss of water, not urine, containing small white flakes. 3. Vaginal bleeding or spotting.

What is the purpose of repeated visits? At each subsequent visit the physician will hear complaints, if there are any, evaluate them, and treat them accordingly. He should weigh the patient, take the blood pressure and examine the urine. He should determine the rate of growth of the pregnancy and look for the beginning of swelling which may mean kidney or heart trouble. Determination of sex by counting the fetal heart rate is valueless. Thus far no reliable method of sex determination has been developed. If the patient has chosen her doctor well she has nothing to fear, for her confinement will be handled as intelligently as her prenatal care has been.

Talks and articles on prenatal care have become almost a commonplace; but it is equally important to know that postnatal care is vital to the patient's permanent health. She should be examined at least twice after delivery: once after six weeks and again after six months. There are conditions which, if corrected in their incipience, mean nothing, but which, if neglected, provide work for the gynecologist. Typical postconfinement instructions are as follows:

Exercise.—Remain indoors for at least ten days after arriving home. Stair climbing must be avoided for three weeks after confinement. Violent exercise is harmful.

Bathing.—Showers are permitted. Tub baths are forbidden until all spotting has stopped.

Nipples.—Care for the nipples as for an open wound. Lie down when nursing the baby.

Marital Relations.—Avoid marital relations for two months, and for three months if repair work was done.

Bowels.—A daily bowel movement is essential, but laxatives and excessive quantities of raw fruits must be avoided.

Diet.—Dieting is harmful. Await final instructions.

Unusual Symptoms.—Report promptly any pain, redness or caking of breasts.

Examination.—Have a final examination six weeks after confinement.

Sincere attempts are being made to reduce the volume of obstetric neglect. Part of it is the patient's personal neglect. For her own sake as well as for the welfare of her child she should consult her doctor frequently and should conscientiously follow his instructions.

1835
"DISEASES ARE THY SERVANTS, LORD. THEY GO AND COME AT THY COMMAND." (EARLY AMERICAN HYMN.)
1935
"THE HEALTH OF THE CHILD IS THE POWER OF THE NATION." (PANELS FROM A CENTURY OF PROGRESS.)
YESTERDAY—TODAY—TOMORROW
A CENTURY AGO, CHILD HEALTH WAS NOT PROTECTED EITHER BY SCIENTIFIC KNOWLEDGE OR BY COMMUNITY EFFORT.
TODAY, SCIENTIFIC KNOWLEDGE CHALLENGES COMMUNITIES TO PROTECT AND PROMOTE THEIR CHILDREN'S HEALTH.
MODERN YOUTH TAKES KEEN INTEREST IN THE YOUTH OF COMING GENERATIONS, AS EVIDENCED BY THE SAN FRANCISCO CAMP FIRE GIRLS SHOWN BELOW, WHO ARE COMPLETING A COURSE IN BABY CARE.

Doctor George Prescribes

By
LUCRETIA
PENNY

"IT WASN'T NO TIME, THOUGH, 'FORE WORD WENT OUT DAT DE YOUNG LADY VISITIN' AT DE SNEEDSES WAS GOIN' TO MARRY MISTER BEN, AND MISTER SNEED COME TO SEE COULD I HE'P RUN DE KITCHEN DE NIGHT OF DE WEDDIN'; HE SAYS DAT DEY WAS HAVIN' A HAND-AROUND SUPPER."

AUNT PAISLEY, when she had finished hanging out the wash, came across the yard to where I was gathering leaves from the lavender that bordered the walk.

"One mo' wash on de line," she sang out, a wide smile on her wrinkled face and her sharp dark eyes bright beneath white hair.

"And early," I commented. "Better sit down and rest now."

She lowered her tall body to the grass. "Precious little restin' dis week has seen me do," she said, "'ceptin' a minute now and den to fill up my lip."

One big dark hand slid into her apron pocket for her snuff box. She filled the lid of the box with snuff and emptied the measure between her lower lip and gum. Contentment relaxed her face.

"You'd be lost without that box," I remarked.

She laughed. "You shore wouldn't want me 'round wifout it. Anybody eber tell you 'bout de time Mister Doctor George found all de Trumanses come down sudden wif a whole mess of different miseries?"

I shook my head. "That's one of your Mister Doctor George stories I've never heard."

"Well, old lady Truman lived up whar de Stewardses lives now. She ust to he'p Mister Doctor a right smart one place and another whar dar was sickness, but she hadn't neber had to have him doctor her none, 'cause she was healthy as a weed. Course he'd been dar to see her boy Ben's first wife, and he knew 'em all mighty well. De old lady was a widow-woman, and Mister Ben was her onliest chile. He married him a mighty nice wife, one of de Meadses, and him and her and de old lady all lived together nice as you please. Mister Doctor ust to say he'd start him a school to learn in-lawses to get along, if it wasn't for one thing."

"And what was that?" I wondered.

"He couldn't 'cide who ought to be de head of it, de old lady Truman or Mister Ben's wife. Dey was bofe so good at getting along together. Dey neber acted in-lawey, no time. Dey could eben 'gree on when Mister Ben ought to put his flannels on and off and whar was de best place for de fly brush to hang. De old lady was pretty old; but she was gettin' around good, and she done a right smart of work. Dey shore did get along. When de young lady got throwed off a horse and died from it, de old lady was as

hurt to lose her as she'd been 'bout one of her own, but she said from de start dat she wanted Mister Ben to marry again soon as he sort of got hisse'f together.

"De young lady had le'f a little boy 'bout big 'nough to be walkin' good; and soon's he was able to halfway take it in, his grandmammy ust to tell him how someday his pappy was goin' to bring him home a pretty lady for a mammy. She'd make it sound lak such a treat dat Little Benny's eyes would pop out and shine. She said she didn't want anybody to eber put no foolishness in his head 'bout stepmammies 'cause she neber had believed 'bout stepmammies bein' hard to get 'long wif, no more'n she believed in-lawses was.

"I kin see her sayin' it now. She was a little, straight standin' old lady, and eben when she had got old her hair was still black. She hung on to her snuff box after most of de white ladies 'round here had give snuff up. Dat's what 'minded me to tell you 'bout her. And I neber saw nobody could get more contentment out of it. Dey wasn't nothin' flustery nor fidgety nor flighty 'bout de old lady Truman; she was de kind it sort of eased you to look at.

"Well, she ke'p hopin' her boy would marry again. He wasn't no spring chicken by now; he'd done waited kind of late to marry de first time. So finally a mighty sweet lady from up Nawth somewhere come to visit de Sneedses, and right off it was plenty plain dat Mister Ben wanted her de worst kind and dat if he had his way de old lady was goin' to get her wish. But seem lak, for Mister Ben, he was slow gettin' on wif his courtin'. He was shore slower dan is common for a widow-man. And he made de out-doin'-est fuss 'bout gettin' things zactly right. He got hisse'f a new suit and a new buggy and new buggy harness, and he kep' his horse curried off till you'd pity what de pore horse had to stand for. And he started talkin' different, lak he'd come from up Nawth hisse'f. Folks set back and waited to hear when would de weddin' be. But dey didn't hear."

I had forgotten my task and sat watching Aunt Paisley's expressive old face. Her dark eyes had the far-away look of one before whom loved memories parade, and in her voice was the gentleness that belonged peculiarly to these accounts of "Mister Doctor George's" patients.

"It went on lak dat," she continued. "Den one day Mister Doctor George had stopped at de Trumanses for a drink, and he was plaguin' Mister Ben 'bout bein' 'fraid to pop de question to de lady at de Sneedses, and Mister Ben looked at his mammy sort of curious and says dat he's ready when his mammy is. Mister Doctor George busted out laughin' and says somethin' 'bout de whole county bein' 'quainted wif de old lady's sentiments on de subject. Den de old lady looked at Mister Doctor sort of curious and says, 'God he'p me, I won't stand in his way no longer!'

"You kin see how curious all of it sounded. It wasn't no time, though, 'fore word went out dat de young lady visitin' at de Sneedses was goin' to marry Mister Ben, and Mister Sneed come to see could I he'p run de kitchen de night of de weddin'; dey was havin' a hand-around supper. Well, over dar dat night I noticed for de first time dat de old lady Truman had commence to fail. She looked lak she hadn't slept de night befo', and she was crossish wif Little Benny, and she didn't want none of de hand-around. She come out to de kitchen and stood watchin' me a minute lak she aimed to ask a favor; den she said somethin' to herse'f 'bout she neber had broke a promise yet, and she went on out. I said to myse'f dat she was shore beginnin' to show her age and it was a blessin' Mister Ben had done got hisse'f a good wife.

"I reckon Mister Ben didn't notice how his mammy was actin'. Him and de bride was as happy lookin' as eber I saw, and Little Benny was dancin' 'round lak it was Christmas mornin'. I couldn't he'p thinkin' dat I bet Little Benny's mammy herse'f was glad. If I was any jedge de chile was in plum good hands.

"Well, it wasn't no time till I'd heard eber so many say how porely de old lady was lookin', and den somebody was tellin' dat Little Benny had took to havin' bad stomach spells, and pretty soon dey sent for Mister Doctor George 'cause dey was all down wif a different misery.

"Mister Doctor reckoned dey'd need me, too, if dey was all sick, and when we got dar it shore looked lak dey did. Little Benny been throwin' up eberything he eat for days, and he looked lak a puny rabbit. Mister Ben had de hives or de shingles or some one of dem worrisome itchy complaints, and his new wife was shut up in de dark wif a bustin' headache she'd had for two days.

"Mister Doctor went in to see de old lady first. She kind of snapped at him when he spoke to her, and den she jes' lay dar in bed and looked lak her strength was all goin' into twistin' her hands. Mister Doctor neber said nothin'. He set dar and watched her. Mister Ben would wander in and wander out; his mind was mostly on what he was itchy wif. Little Benny would come poke his little scared face in de room and den slink off again. I noticed how him and his pappy favored. Dey bofe looked lak somebody had slipped up behind 'em and smacked 'em, when dey thought dey was bein' so good. I waited 'round to see would Mister Doctor want somethin'.

"After so long a time he says to de old lady dat she didn't care much about gettin' well, did she? She snapped at him again and lay dar twistin' her fingers 'round each other. He got up and says he aims to shake up her pillows. She set up in bed, grumblin', and Mister Doctor took her pillows up and give 'em bofe a shake and den motioned for me to come wif him to de kitchen.

"'Gimme yo' snuff box, Aunt Paise,' he says. I got it out, and he took a teaspoon and filled it heapin' up wif snuff and told me to take it to de old lady and tell her it was doctor's orders. I reckon he sent me 'stead of goin' hisse'f, 'cause he knew a heavy snuff user lak me would know best what a person dat had give it up sudden was sufferin'.

"I says to him, 'You 'spected dat, and so you looked under her pillows and shore 'nough dey wasn't no snuff box dar.' I ust to always figger him out if I could. He grinned lak a little boy.

"I went on in to her bed and held out de spoon. Her eyes brightened up, and her underlip sort of reached out, but she shook her head. 'I ain't neber broke Ben a promise yet, Aunt Paise,' she says, pitiful. I told her dat snuff wasn't snuff when it was medicine, and 'sides Mister Doctor had said for her to take it, and 'sides all dat, I bet she had promised she wouldn't take another lid full and dis here was a spoon.

"De tears spilled all over her face, and she reached for de spoon. She says, 'Do Ben know yet?'

"I told her dat Mister Doctor had him down at de horse block and I reckon he was splainin' to him dat quittin' snuff ain't to be done sudden, lak fallin' in love is. I says, 'Don't you worry no more; you shore been through a plenty. It's a sight on earth what a mammy'll do for her boy and a set-out widow-man will think up.'

"She laughed lak a young person and got up and started huntin' her clothes and talkin' 'bout what could she do for her new daughter. 'Dat is,' she says, 'if she'll let me inside her sight after de way I been rearin' round.'

"I says, 'She'll be all right when she gets ober de worry headache she's got. I reckon she thought she'd done married into a hornet's nest.'

"De old lady was dressin' by den. She says, 'Pore Little Benny neber was sick in his life befo'.'

"I says, 'Don't you worry 'bout him neither, 'cause I'se seen 'em throw up plenty times from bein' 'cited, and if you been actin' lak I acts when I'se out of snuff de pore chile's had plenty to get him 'cited.'

"She was twistin' up her hair and she turned 'round and looked at me. 'Aunt Paise,' she says, 'do you reckon it is so, dat up Nawth nice folks don't use snuff?'

"I says, 'I don't know 'bout dat, but if dey don't dey shorely won't still look down on de habit after dey sees dat you and me bofe has it! And dey must know dat, nice or nasty, it ain't to be quit sudden in yo' old age.'

"We was bofe laughin' when we looked up, and dar stood Mister Ben's new wife. She'd been cryin', and her yellow hair was ebery which-a-way, and she looked lak a chile. She done heard all we said. She went to de old lady and put her arm around her and says, 'You promised yo' boy, didn't you; and he's a idiot, ain't he?'

"De old lady says, 'He ain't no worse dan what you picked out for a husband, and you had more choice dan I did.' And den dey bofe laughed. And when a woman dat ain't been married two weeks can laugh at a joke 'bout her makin' a pore pick, and a old lady what's had two weeks off her snuff can laugh at her onliest boy's not havin' brains, dem two laughers has a good start tworge gettin' along.

"What about the hives, or the shingles, or whatever it was?" I asked as she paused.

"Mister Ben's?" she queried, chuckling. "Mister Doctor George told him he hoped he'd break out itchin' regular to remind him what a fool a set-out widow-man can be. Makin' his mammy promise such as dat 'fore he'd bring a up Nawth wife dar!"

"But they did live happily ever after?" I hoped.

Aunt Paisley nodded. "Mister Doctor George said dat he still wouldn't know who to make de head of his in-lawses' school, de old lady Truman or Mister Ben's wife."

Chosen Companions

By
SOPHIA YARNALL

ON THE FENCE SAT BOBBY, BOISTEROUSLY ISSUING INVITATIONS TO TOM TO COME THROUGH HIS GATE: "YOU COME OVER HERE THIS MINUTE AND FIGHT IT OUT, MAN TO MAN."

I WAS kneeling down, trying to dig the stubborn end of a dandelion out of my garden, when my hand stopped dead, clutching the trowel.

"You come over here this minute and fight it out, man to man."

It was my 8 year old Bobby addressing his arch enemy, Tom. My heart sank, for I knew from weary experience that this was the beginning of a long and violent session. I closed my eyes and sat back on my heels. I could see just how they both looked; for when the feud first began, I used to watch them from my bedroom window. I may be modern enough to look like a stoic when my children start to do battle, but I still have a haunting longing to be permitted at least to observe the sinister performance.

This feud, however, was fought more by wits than by muscle, so that I felt that no bodily harm would be done to either of the tow headed, pink cheeked warriors.

Each was undoubtedly straddling his own fence. They always did that. I think it made them feel more like landowners. The public road separated the two, so that if "he who ran" by might not "read," he might, at least, hear.

Our yard is divided in two by a high hedge, on one side of which I sat, dismally holding half of the broken dandelion. On the other sat Bobby, on the fence, boisterously issuing invitations to Tom to come through his gate. Tom crossed the road and, from the sound of things, stood under the shadow of our fence.

"I did too get a wart on my hand," he said, "and I got it from a toad!"

"Well, my mother says you can't get warts from a toad," answered Bobby.

"She's crazy," the invader challenged.

There was a pregnant silence, and I waited, breathless, to hear Bobby's retaliation. Alas, I soon heard. "She is not crazy! She knows a lot more than your mother—she's much older!"

Tom may have been confounded temporarily; but I, the innocent bystander, was mortally hit. It was no more than I deserved, however, for I was eavesdropping, and that was against one of my most inflexible rules. I do not take part in my children's feuds.

When I was a little girl, I made up my mind that when I grew up and had children of my own, I should never force them to be "nice and polite" to the children of my friends. It was probably my only rebellious thought against the existing order as I knew it, for I was a well behaved and extremely dull little girl.

I can remember well, however, the day this one revolutionary attitude burst into undying flame within me. I was about 10 years old, nearsighted, inquisitive and extremely dignified. I was standing peering over the edge of a shallow pool in Rittenhouse Square when Elizabeth Grant pushed me in head first. The damage was slight except to my self esteem, but that had been badly wounded. I rose up, spluttering explosively, and started after the offender. Murder or, better still, torture before many witnesses was in my heart. I pelted after her as enchanted crowds gathered. I was catching her. Closer and closer I drew. My hand felt the tail of her coat and caught it. Temper was just giving me courage, and the cries of "Go ahead, hit her—she was mean to you" were beginning to go to my head, when, out of nowhere, appeared two ominous figures, our nurses. I was jerked away in my hour of triumph and marched home in disgrace, not because I had defended myself, I was given to understand, but because Elizabeth was the child of one of my mother's best friends.

I brooded darkly and silently over the injustice of the whole situation, and then I hit on a solution entirely satisfactory to me. I should always be polite to Elizabeth and her ilk because that was required of me; but in my heart I resolved that I should have the secret, piercing sweet solace of deep, enduring hatred and, when I grew up and had children, they would never have to be friends with any one just because I liked the parents.

The first resolve I have discarded, but only fairly recently. It took me at least twenty-five years to discover that Elizabeth was really a nice person. The second resolve, about my children, I have adhered to tenaciously.

WHEN Bobby and his sister, Alice, first started putting out their social feelers, so to speak, I determined that I should remain entirely in the background. They were taught certain fundamental rules of decent behavior and launched forth on their voyage alone. I fell over backward in my efforts not to force them to be nice to my friends' children. In fact, the only thing I allowed myself was an occasional suggestion that we invite to our house, purely on probation as it were, some child whose parents I knew. This worked nicely, for a while.

One day, however, little Dorothy came to lunch with my Alice. Dorothy was a most engaging child, and I was devoted to both her father and her mother. I was not only fond of them but respected them and took great pleasure in the fact that I thought they respected me.

"How nice," I mused, "that sometimes the children of one's friends are really congenial with one's own children. Perhaps Dorothy and Alice are the exception that proves the rule, and it will not take them twenty years to like each other."

I was roused from this revery by the realization that Dorothy was not eating and that Alice was taking advantage of my absorption in thought to follow her example.

"Eat your spinach," I reminded the visitor, in the matter-of-fact tone I use toward my own children. Her eyes widened. She looked up at me wistfully.

"I'd love to," she said, "but I can't now. There's a fairy sitting on it. There's a fairy sitting on all my food, and so I can't eat any more."

Alice dropped her fork with a clatter and looked at Dorothy with stupefaction and disgust. From that moment on, Dorothy was anathema to her. She had her own methods of evasion; but they were sturdy whole-hearted ones, and a fairy had no place in them. From the moment that fairy had been mentioned, Dorothy became a "silly" in the eyes of my daughter, and their friendship was badly shaken.

SUDDENLY I found myself wanting to patch it up quickly, not because I thought that either child was distressed but because I did not want Dorothy to go home and tell her parents that my child had been rude to her and that she did not want to come back and play with her any more; not that I honestly cared whether the child came

DOROTHY'S EYES WIDENED AS SHE LOOKED UP AT ME WISTFULLY. "I'D LOVE TO EAT MY SPINACH," SHE DECLARED. "BUT I CAN'T, FOR THERE'S A FAIRY SITTING ON IT NOW."

back again, but I could not bear to have her parents judge either my child or myself.

Be it said to my shame that my immediate instinct was to pretend that Dorothy's fairy was rather charming; but be it said to my credit that reason and a sense of justice interposed, and I kept a judicious silence. I would not make a bid for the commendation of my friends at such a price. Alice would be allowed, within the limits of good manners, to judge the whole episode for herself; and if she did not want Dorothy to come to play with her soon again, she need not have her. I was not going to force the issue. Perhaps some day Dorothy would find a way of avoiding her spinach more nearly like Alice's special forms of evasion, and then they would probably be great friends. At any rate, I would have no part in it.

I HAVE a theory that the more we allow our children to assume the attitudes that will be normal to them when they are grown up, the better off they are. We are so liable to treat them as though they were a species different from ourselves, forgetting that a scant twenty years, more or less, will bring them striding along beside us. My desire is always to short-cut them to their destination as much as possible, and I know of no better way than by allowing them to act as individuals from their earliest days.

When they grow up, one of the most important things in their lives will be their relationships with their friends. Why not begin from the cradle to let them discover which of their contemporaries are congenial? There are plenty of my acquaintances whom I know to be nice, attractive people. I meet them at dinner and immensely enjoy casual conversation with them. But they are not my intimate friends because we have such different interests. Perhaps their chief pleasure in life is playing golf. Mine is not, so my close friends are not golfers. Yet I was brought up on the theory that any child who was a nice child and whose parents were nice was, of necessity, my boon companion.

MY CHILDREN'S particular interest happens to be carpentering and building; so, naturally, their best friends are those who like to play with hammer, nails and a can of paint. The child who comes to spend the afternoon with them and wants to do double somersaults on the lawn is, to them, like my golfing acquaintance who wants to go out in my garden after lunch and practice iron shots.

When I was little, I always had the feeling that I must be on the defensive about my companions. If their parents were unknown to my parents, I must make it clear just how and why they were nice. If, on the other hand, their families were known to my family, it meant we never could have a really independent relationship. Comings and goings were arranged for us, and we could not choose our engagements ourselves. Not so with the young of today.

A child whom I did not recognize came to play with my son on several consecutive days.

"Who is that little boy?" I asked Bobby, after the boy had gone. The old order changeth, but slowly. "I have never seen him before. Who are his father and mother?"

Bobby looked up at me tranquilly. "Why, I don't know, Mother," he said. "He's just a common little boy like me."

A pretty good explanation, I thought, and I hoped I would always respect the common interests of these two "common little boys."

The Menace of Radio Quackery

"DON'T SUFFER another hour! Get a bottle of Alkawhozis at your druggist's right now. The vast majority of human ailments, physicians tell us, result from an overacid condition of the body fluids. Keep your body fluids alkaline with Alkawhozis. Drive away that done-up feeling. Enjoy the perfect health, energy and vitality of vigorous youth. Keep alkaline with Alkawhozis!"

As the oily and overconfident voice of the radio quack fades out, there flashes into my mind the fact that human beings do not live with "fluids" in an acid condition. Then I settle back to enjoy the ten thousandth rendition of that popular ballad, "O, You Nasty Man."

Of all the scientific developments of the generation, the radio interests and irritates me most. As the announcement from the Polo Grounds informs a palpitating nation that with Charlie Gehringer on second and Heinie Manush on first, good old Carl Hubbel has just done the impossible in mowing down Babe Ruth, Lou Gehrig and Jimmie Foxx by the strike out route, my heart bursts with pride. "Grit," I remind my lanky sophisticated male offspring, "put the good old U. S. A. where she is today, and they'll never stop her. No, sir, not while we produce Carl Hubbels." I unbutton my vest, which has suddenly become too small.

Unfortunately, these radio inspired moments of supreme elation have a bad habit of degenerating into periods of irritation, anger, rage and even mild nausea as I listen to the great keyhole peeper's long range predictions of "blessed events," the limitless virtues of some kinds of crystals, or the red headed female evangelist kissing her new husband in front of the microphone on the first morning of their honeymoon. Somebody made a *faux pas* in salesmanship there; just after those kisses would have been the psychologic moment to broadcast a few blurbs about the magic concoction from the High Sierras first used by the untutored redskin to cure himself of halitosis, insomnia, "athlete's foot" and "digestive disturbances." A dollar would have been cheap enough for a dime's worth of ipecac in an emergency like this; it would have helped the natural nausea engenderd by the broadcast.

IN ALL seriousness, such broadcasts impress me as the most menacing examples yet encountered of the potential power of the radio for good or for evil. Tens of thousands of sincere and devoted scientific and social workers throughout the nation are striving to improve public health, working day and night to relieve untold misery, suffering and agony, much of it

the result of ignorance about healthful living. In the face of these sincere persons there comes into American homes the unctuous but dramatic voice of the veriest layman, urging millions of citizens in the names of esteemed public figures to resort to some unknown concoction as a cure for insomnia, lack of vitality or "any disturbance of normal physiologic function." "You can't afford to go contrary to the advice and example of such famous men. Mail your dollar today," says the voice.

Such a remarkable phenomenon raises the pertinent question, Which is going to count for more in terms of American health, the unsung scientist in his laboratory, the physician at the sick-bed, the nurse on her rounds, and the teacher in her classroom, on the one side, or the ignorant and venal manufacturer of quack remedies backed by the oily voiced radio announcer?

In order to understand this dangerous situation thoroughly, we must note that the point at issue is not the unmitigated audacity shown in the use of these names; in this case, as in many others, that door will be locked after the horse is stolen. Nor does its true significance involve the character of the concoction being advertised; oleomargarine, malted milk, coconut butter, cereal substitutes for coffee, boric acid and even flour are sold under a multitude

of magic trade names, often at ten or fifty times their true value, and yet they do practically no harm in the using.

The significant fact about this form of radio quackery lies in its destructive counter-attack on the legitimate agencies engaged in educating the American people about how to achieve and maintain health. After all, it is apparent to intelligent persons that the health problem in America must be solved ultimately through education, in the main, rather than through treatment of disease, indispensable as the latter function must always be.

THE ignorant, of course, do not see the menace; the optimist discounts its potency; governmental authorities hesitate to dig up more snakes, and the scientist is generally inarticulate except in his own language, which is difficult for the layman to understand. Consequently the radio quack goes merrily on his way, deluding millions of victims into spending hundreds of millions of dollars on worthless or positively injurious fake remedies. Worse still, he educates the American people to depend on quacks and cure-alls rather than on scientific advice in matters of health.

Tremendous strides have been taken in America in improving the health of our people, and no one denies this fact; but we must not forget that this progress has been made in the face of constant resistance and counter-attacks of the quacks. Now that quackery has been immeasurably strengthened by the reinforcement of the radio, it becomes a serious question whether science, with its present methods, can continue to gain ground in the field of health or can even hold the ground it has won.

It is true that federal authorities have placed some restrictions on the character of radio advertisements of medicines and treatments. As a result of the almost universal knowledge that no medicines have ever been discovered of the slightest value in curing cancer and tuberculosis, "cures" for these diseases have been banned from the air. The Federal Trade Commission reiterates its dictum that no false claims shall be made for any product by radio; but so far, because of the lack of proper legislation the radio quack seems little handicapped by these restrictions. The quacks are so clever in the use of suggestion that they may be counted on to misinform and delude the public effectively just as long as they are allowed to discuss their products at all.

In the face of this new menace to the health and intelligence of the American people the question arises, What should be done about this situation? The answer seems to be effective control by law, and more education in the scientific facts of health and disease.

True that occasional radio programs featuring legitimate health advice are now broadcast; but as a rule these programs are relatively ineffective because they do not have the entertaining and dramatic qualities that hold attention and bring conviction.

Intelligent persons with some knowledge of health suffer a feeling of humiliation as they listen to the radio quack and realize that the majority of our people must still believe that the skin can be "fed" by lotions rubbed on the outside; that all "digestive disturbances" are so essentially alike that all can be cured by the same "world famous beverage" or "tonic," or that "lassitude," which may result from tuberculosis, heart disease or diabetes, is a condition that can be cured by the use of malted milk sold under a fancy name at five times its real value. Thinking persons find themselves heartsick at the thought of millions of dollars being wasted and millions of cases of illness being aggravated as a result of such delusions.

PEOPLE must be taught somehow the absurdity of diagnosis *in absentia*, shotgun prescriptions by ignorant laymen, alcohol and laxatives dressed up in fancy wrappers and endorsed by bewhiskered quacks who have been dead for forty years. Somehow the American people must be made to understand that lack of "vitality" may come from a defective heart, incipient tuberculosis, diabetes, hookworm, faulty nutrition, overwork or lack of rest or from any one of a number of other causes, and that in no case will any cure-all be of the slightest value, no matter how many famous Americans or Frenchmen are reputed to endorse it. Correct knowledge about nutrition, about methods of avoiding infections and above all about the importance of regular examinations in times of health and the necessity of medical advice in times of illness must be made universal. The American people must be told frankly how really few "cures" there are in the form of medicines, and they must be made to feel that only the stupid and the gullible pay any attention to the suave voiced quack with his "skin foods," "normalizers" and "regulators" at only $1 a bottle.

I should like to live to see the day in which America becomes a land of economic security for every citizen, adequate educational facilities for every child, true freedom and justice for every fellow man. Beyond these ideals I should like to live to see every medical charlatan and quack forced to starve or go to work for lack of "suckers." The good work of education now being done must continue; but in addition it is high time that all agencies for the improvement of health in America join hands in a mighty counter-attack against the broadcasting of quackery, with its grave menace to American health.

By EUGENE W. NIXON

NURSING CARE of the SICK CHILD

By
Regina J. Woody

ALWAYS ARRANGE YOUR CHAIR SO THAT THE YOUNG PATIENT WILL BE ABLE TO WATCH YOU WITHOUT THE SLIGHTEST EFFORT ON HIS PART. THE VERY SIGHT OF YOU, SITTING QUIETLY, READING, SEWING OR RESTING, WILL BRING INFINITE COMFORT TO THE CHILD.

EVEN THOUGH most of us believe that a trained nurse is the proper person to care for those who are seriously ill, in many instances the mother is almost wholly responsible for the care of her children. Therefore, the kind of nursing care that the average mother is able to give is often a real problem to the doctor. The recovery of many children, swiftly and without relapse, is often the result of the faithfulness with which the mother carries out the doctor's orders.

One soon discovers the astonishing fact that the best way to care for the patient is both the easiest and the quickest one for the nurse. Naturally, no mother or nurse will consider herself qualified even to discuss medical principles, but the length of the sheets, the proper height of the bed, the best way to give an alcohol rub and the way to watch carefully the little patient's temperature rather than his temper are points in which a well informed mother can be a valuable ally to the attending physician.

The room in which the patient is to be cared for must be properly prepared for use as a sickroom. Begin by removing curtains, rugs, toys and ornaments; clean, white sash curtains are often put up to insure privacy. Clear out the bureau drawers and remove all the things they usually contain to another room. Place in these drawers the patient's night clothes and some flannel nightgowns; also a pile of sheets and pillow slips as well as plenty of towels and wash-cloths. This will save many steps to the linen press and give you instant access to what you may need in an emergency without leaving your patient at all. Remove from the room everything not actually needed and wipe all painted surfaces with a damp cloth. Place a clean towel on the bureau top. The thermometer may stand in a tiny glass half full of alcohol so that it is always ready for use. A flashlight is useful, particularly if there is no electric light. All bottles of medicine should be kept together on a small tray; they should be kept neat by pouring their contents out on the side opposite the label, thus keeping it clean and legible so that, if necessary, the new prescription can be refilled by number.

A COMFORTABLE chair in which one can sit facing the patient should be placed in the room. Remember that your patient may feel too ill to turn to you and that a good nurse should always be in her patient's line of vision when speaking to him. If he is extremely weak, bend over and look squarely into his face when you speak,

and, if you must ask a question or give an order, speak softly and clearly. Always arrange your chair so that the child can watch you without the slightest effort on his part. The very sight of you, sitting quietly, reading, sewing or resting, brings infinite comfort to him.

A note-book of fair size is almost an essential. Each day a new page should be used for a running account of the patient's condition; everything pertaining to his illness should be carefully recorded. The back of the preceding page may well accommodate the doctor's orders, especially the changes or additions he makes in them from day to day. Placed here, they are always at hand for instant reference. Unless you have been instructed otherwise, taking the patient's temperature twice a day will be sufficient. Take it in the morning about 7 o'clock, before the patient has taken anything by mouth, and again at 4 o'clock in the afternoon. The careful noting of the temperature on the chart should be kept up as a matter of course until the physician advises its discontinuance when convalescence is well established. The bowel movement, the amount of urine excreted, the exact quantity of water taken, the medicine, or its omission, the kind of food eaten and its exact amount should all be on the chart so as to give a perfect picture of everything which has happened in the sickroom during the day. This record will stand the mother in good stead when the doctor suddenly asks whether the patient has had bowel movements every day since Friday and just what they were like, or when he inquires just how much water the patient has drunk each day for the past three days. Without the chart, only a person gifted with an unusual memory could answer such questions honestly and accurately. Get the habit, then, of writing down exactly what you do and when you do it. The chart will look somewhat like this:

7:00 a. m.	Temperature, 103. Alcohol rub. Clean nightgown. Glass of water. Medicine.
8:10 a. m.	Slept fairly quietly. Coughed a little. Talked incoherently.
8:20 a. m.	Glass of milk. One-half slice of milk toast. Very little appetite.

Once you have acquired the habit of making detailed notes, you will find that this will take little of your time, but that it is immensely helpful for reference. I like to underline each entry of the temperature and of the liquid taken, for it helps to locate these entries quickly.

For the nursing care of contagious disease, your doctor's orders will include the correct information about white gowns and caps and the sterilizing of clothing and bed linen. However, in the case of the average illness, a simple one-piece dress is eminently practicable for both your nursing and your housework. While real illness is present, a plain white uniform cannot be improved on, but as the little patient gets better, he may weary of the monotony of the uniform and long to see a change. It would be well if mothers kept in mind the fact that it is the clear freshness of color, rather than frills or elaborate trimming, which pleases the child.

The height of the bed is an important detail, especially if the child must remain constantly in bed for weeks. In such cases the mother will do well to choose a single, adult sized bed for him to lie in, and then have the legs extended. If the bed is of wood, a carpenter can raise it about 8 inches by fitting blocks of wood under the legs, but as the bed will then be immovable, care must be used in placing it so that it can be approached easily from either side. If the bed is of metal, a plumber can screw pieces of iron pipe equipped with casters to each leg. This is an ideal solution of the problem and one far less expensive than buying a hospital bed, because these extensions can be taken off after the illness is over. No mother would nurse a patient in a bed of normal height for a single day, if she but realized how much easier the higher bed would make her task. Many mothers suffer from backache and fatigue so severely that they have to give over the care of the child to another, although, if they but knew, a few inches of added height would have made their task almost easy. Even during convalescence, the added height makes for the patient's enjoyment. When the bed can be pushed to a window, the extra height permits the little patient to see everything going on outside, whether it is the traffic of Park Avenue or a small calf tethered to a stake under an apple tree on a farm in Maine. Needless to say, the outside world holds great allure for the small shut-in, and these glimpses of life outside the sickroom often have a most beneficial effect.

Yet, if the patient is a small child in a cast, or one given to throwing himself carelessly about his bed, the added height may cause the mother real concern. This situation can be met by ordering side boards from the nearest lumber yard. These are two pieces of wood about 68 inches long, 10 inches high and 1 inch thick. At each end are bored three holes, large enough for the passing of the leather thongs with which they are fastened to the head and foot of the bed. These boards are put on after the bed has been made up and must be removed whenever the sheets are changed. This extra work is well worth while, as it frees the mother from anxiety about the safety of the little patient whenever she is called away and detained an extra five minutes. The boards can be made more attractive by a coat of paint or enamel that fits into the color scheme of the room, but this is hardly necessary. It is more important that the boards should be fine grained and planed to satin smoothness for ease in handling. In any case,

even the most active child will be quite safe between these two boards.

The question as to how a bed is made is raised so often that I have come to the conclusion that the only good bed is the "hospital bed," made as is the one that is described in Jane A. Delano's "American Red Cross Text-Book on Home Hygiene and Care of the Sick." I might add that sheets fully 108 inches long and 72 inches wide are well worth while, for with them the question of a mussed bed is settled once and for all. If you use such sheets, two clean ones every morning, and make the bed taut and smooth with hospital corners, little or no attention will be needed to keep it in order the whole day, no matter how restless your patient may be. A light weight blanket and a crinkled white spread will be sufficient covering for the average patient most of the time. At night, when the windows are wide open, you may add a light weight, all wool blanket, but no patient can be comfortable if the sheets are loose and disordered or if heavy coverlets weight down his weary limbs. In saying that the sheets must be well tucked in, I refer to the lower sheet only. When putting on the upper sheet, leave plenty of room for the patient's feet, even if you have to pleat it a bit at the foot. Never forget that the only natural position for your child's toes is pointing toward the ceiling and do not tuck him in so neatly that his poor feet make you think of a ballet dancer who has leapt agilely to her toes. If you do tuck him in too tightly, you will have only yourself to blame if, on returning after a moment's absence, you find the end of the bed gaping wide open and your poor child's feet exposed to the air.

NEVER forget that a clean pillow slip has comforted many a restless patient and that a soothing alcohol rub and a clean nightgown will often send a feverish child off to sleep more comfortably than a dose of strong medicine.

A light which can be allowed to burn continuously all night, such as a 15 watt bulb or a small night light candle, should be placed in a corner of the room well out of range of the patient's vision. If possible, have the medicines, the note-book and a pencil or two on the same table so as to save unnecessary steps. Your little patient will get a much better night's rest in a room where the light is shaded by a dark cloth or a turkish towel than in a dark room where one must grope about knocking things over and barking one's shins before snapping on a glare of light. In a properly darkened room, medicine may be administered or an alcohol rub may be given so quietly and soothingly that the patient is hardly roused from his sleep.

During the day, shoes with low, rubber heels should be worn; they are quiet and make walking much less tiring. At night, plan to wear

ALL BOTTLES OF MEDICINE SHOULD BE KEPT TOGETHER ON A SMALL TRAY. THEY SHOULD BE KEPT NEAT BY POURING THE CONTENTS OUT ON THE SIDE OPPOSITE THE LABEL.

warm bedroom slippers and a tailored, flannel bathrobe. This bathrobe, beside being delightfully tidy, may save you from a severe cold, for even summer nights may be chilly.

The care of a little girl's hair, even if it is long and thick, is a less difficult problem than one might think. Bobbing may have to be resorted to if the illness lasts many months, but otherwise a careful combing with a coarse, blunt-toothed comb twice a day should keep the hair reasonably clear of tangles. It should be parted and plaited in two braids with elastic bands on the end of each. If the hair is too short for this and still must be kept out of the child's eyes, the easiest and simplest way is to part it on one side, draw it back gently from the forehead and ease on a small rubber band. This little band has the advantage of not pulling the hair and, if put on deftly, it never slips down and off as ribbon or clips do. A single snip of the scissors will remove it without tweaking even a single hair of the little sufferer's head. Never attempt to remove it whole, for it will pull dreadfully.

AFTER caring for your patient two or three days you will be able to plan your routine for yourself, but a general outline of the care of a sick child during the day may be helpful. As soon as you get up, look in on your little

patient. If he is awake, say good-morning cheerfully. Unless there is a real emergency, do nothing until you are completely dressed. Here you can emulate the professional nurse to excellent advantage; if she is not dressed, she does not attend her patient unless he is in serious pain. Smile briefly and announce that you will be back to look after him the very minute you are dressed. Bathe and dress yourself carefully. Do not hurry unduly, for you have a day's work ahead of you. If you expect to do it well, it is only reasonable that you be properly washed, groomed and neatly dressed. If you do this religiously, if you take time enough to bathe and dress and in addition take at least two hours for rest and recreation in the twenty-four, you can safely stay on your job for months. Do not hesitate to ask your husband or a friend to substitute for you every evening. Never forget that a professional nurse takes time off for her own health, as well as for her own pleasure. She goes off duty and takes a walk in the fresh air so that she may be able to come back to her case refreshed and ready for long hours. You must do the same.

As soon as you are dressed in the morning, take your patient's temperature before you give him a drink or any medicine. Write it down immediately along with any comments you feel will be helpful to the doctor. Wipe the child's face and hands with a cloth wrung out of tepid water, pull the bed covers straight and serve breakfast or whatever nourishment has been ordered. About two hours after the child has breakfasted give him the bedpan. If an enema must be given, this is the best time of the day for it. Once this has been accomplished, allow him to rest for fifteen minutes with a bit of fresh air in the room to clear the atmosphere. An extra blanket is usually needed at this time, as the child may be cold after his effort. By the time he has rested for a quarter of an hour, you may safely proceed with the bath. Pleat a small, white blanket into 4 inch folds and lay it close beside him in bed; spread out about 1 foot of the blanket on the outside. Roll him over the flat, pleated folds onto the smooth part, pull the pleated end out from under him and smooth it as though it were a sheet. Take off his night clothes and place another light weight, single blanket over him. Tuck this in nicely all round him. Then wash him, bit by bit, using first a soapy cloth and then a well rinsed one, and then dry him with a soft towel. Two pans of warm water, one for soapy water and one for clear water, save time and effort. Dry each part immediately.

After the bath, dust the child with powder and put on fresh night clothes. If he is able to sit up, wrap him in blankets and ensconce him in a chair. If he is not able to sit up, make the bed by releasing and tucking the soiled lower sheet close along his body and then putting on the clean one, tucking it in at the top and bottom of one side of the bed; then crowd the untucked half beside the soiled sheet and roll your patient over both. Take off the soiled sheet and pull the new one smooth and tuck it in well at each remaining corner. The rest of the bed is about as simple to make as if there was no one in it, but you must have patience and make a smooth job of it if you want it to be comfortable all day long. Be sure your patient is covered with a light blanket while you are changing the lower sheet.

The quieter the morning the better, unless you have special orders from your own doctor as to what to do. It is well to serve luncheon about 12:15. I have found that a small tray, pretty dishes, paper napkins and a friendly smile are the best aids at mealtime. Never leave a sick child and a tray alone together. Give liquids either by a glass tube or a straw, holding the glass yourself. If he is seriously sick, a comforting, friendly, unsentimental attitude is best for both of you, but if he is ready to be amused it will make his meal pleasanter if you will read a favorite story, retail the day's gossip or talk about some treat to come when he is well. Never force food unless you are actually ordered by your doctor to do so.

Cook small quantities, have the food as hot and tempting as possible and cultivate in yourself a cheerful, friendly attitude about the eating of it. If you must feed the child, do it in a business-like manner as if you were personally interested in his enjoyment of the food rather than worried lest he refuse to eat it. If he hates the sight of it, try to get him to look on it as a necessary part of his cure, just as his medicine, and ask him persuasively to try to eat a little of each thing, not as a favor to you, but in order that he, himself, may gain his normal strength as quickly as possible.

As for yourself, be sure that you eat properly. Mothers who live in the city may find that the best time for them to take their two hours off duty is after supper, when the patient is fed and settled for the night, the father home and the house quiet. Take this time for a walk, a visit with friends or, if you like, a quiet dinner in a restaurant down town. See that you have one excellent, hot meal a day. If you can take three quarters of an hour to eat it, with a friend or maid in charge of your little patient, so much the better. If this is impossible and you must be on call, eat in the room next to the child, after explaining to him that you are going to have your dinner. Make sure that everything that you can do for his comfort is done and then ask him to give you a quiet half hour.

As convalescence creeps on, a tiny toy or favor on the luncheon tray will usually please a child inordinately and make the after-luncheon rest a pleasant one.

By 4:30 another massage will be appreciated, even if it is only with talcum powder. Straighten the bed and visit with him a few minutes before supper. Serve supper about 5:15, or well before the family dinner hour. Once the child's supper is over and the night sets in, remember that the prospect of the evening may seem long and dreary to a child confined to bed all day, so plan to read to him if he is well enough to enjoy listening. If a relative or his father can take this duty over, it will make an excellent change in the child's routine. Plan simple, pleasant, soothing books and have the reading last a fairly long time, at least half an hour. Then shade the lights, open the window and say good-night.

Be sure that a good bell with a clapper is near the child's hand so that he may call you without effort. Nothing is more terrifying to a sick or frightened child than to have to scream for attention. Promise him that you will come as promptly as you can, if he on his part will be careful only to ring for you when it is absolutely necessary. If you prove to him by word and deed that you are really giving him the best service of which you are capable, you will perhaps be astonished at the marvelous self control a small child can show.

One of the proudest moments of the mother's life may well be when her doctor smiles at her and says, "Well, Madam, you have taken such good care of this little patient that you won't be needing me any more. But I do want to tell you that one reason this child got well so soon was because of the splendid care and nursing you gave him."

HEALTHGRAMS ✣ from Articles in This Issue

¶There is no other disease afflicting mankind which is so thoroughly understood by modern science as diphtheria. *See page 400*

¶Count your blessings, make the best of what you have, do the best you can and then refuse to worry. *See page 404*

¶To give the child's eyes protection following or during an attack of the measles, the eyes should be thoroughly cleansed and the window shades should be partly lowered to keep out the direct sunlight, but by no means should all the light be kept out. *See page 408*

¶No congenital malformation of the face calls for as early repair as cleft lip. By the age of 6 weeks the infant is physically equipped to withstand the strain of operation, and surgical reconstruction should not be delayed. *See page 410*

¶The ornamental pond can be cleared of mosquitoes by stocking it with various species of top minnows which feed on the mosquito larva. *See page 414*

¶Sincere attempts are being made to reduce the volume of obstetric neglect. Part of it is the patient's personal neglect. For her own sake as well as for the welfare of her child she should consult her doctor frequently and should conscientiously follow his instructions. *See page 418*

¶There is a theory that the more we allow our children to assume the attitudes that will be normal to them when they are grown up, the better off they are. *See page 425*

¶Radio broadcasts on quack medicines and cures are the most menacing examples yet encountered of the potential power of the radio for good or evil. *See page 428*

¶Never leave a sick child and a tray alone together. You can make his meal pleasanter by reading a story, retailing the day's gossip, or by talking about some treat to come. *See page 430*

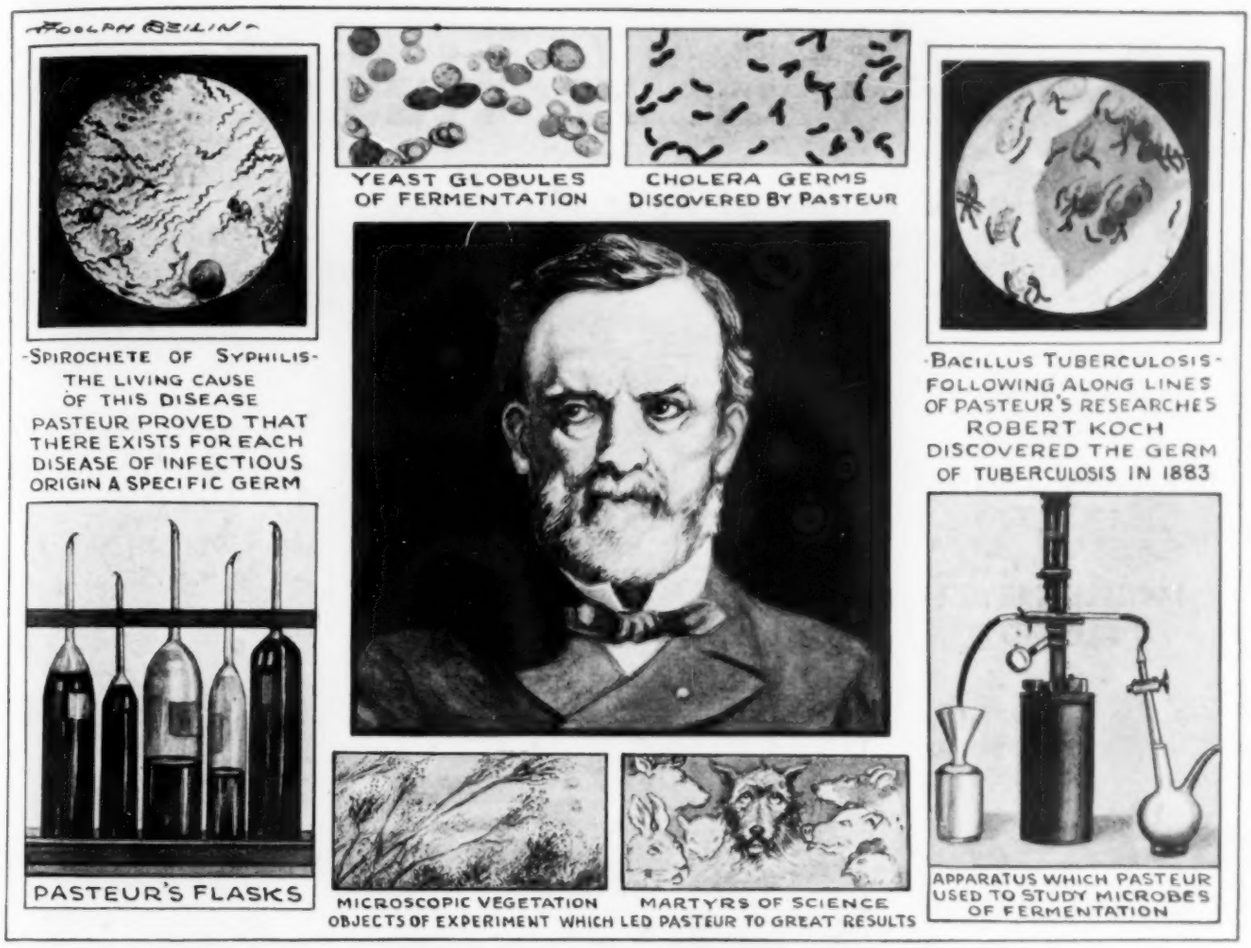
¶No person should keep dead teeth if it can possibly be avoided, and it usually can. *See page 440*

¶From his knowledge of microbe action, Pasteur was led to the production of antitoxins for the prevention and cure of diseases, which culminated in his supreme service to humanity. *See page 435*

¶Whether or not the young offspring will be supplied with an adequate amount of satisfactory food depends largely on the nutrition and health of the mother during these important months, and much can be accomplished through proper diet, exercise, fresh air, rest and freedom from worry or excitement. *See page 446*

¶Unless some attention is paid to both the primary and the secondary causes, the eczema rash seldom disappears permanently as the result of external applications alone. *See page 436*

¶In the treatment for eye diseases such as iritis and iridocyclitis it is important to employ rest in bed, good elimination, hot moist compresses, shading of the eyes from direct light, and absolute rest of the well eye. *See page 451*


ADOLPH BEILIN
YEAST GLOBULES OF FERMENTATION
CHOLERA GERMS DISCOVERED BY PASTEUR
SPIROCHETE OF SYPHILIS-THE LIVING CAUSE OF THIS DISEASE PASTEUR PROVED THAT THERE EXISTS FOR EACH DISEASE OF INFECTIOUS ORIGIN A SPECIFIC GERM
BACILLUS TUBERCULOSIS-FOLLOWING ALONG LINES OF PASTEUR'S RESEARCHES ROBERT KOCH DISCOVERED THE GERM OF TUBERCULOSIS IN 1883
PASTEUR'S FLASKS
MICROSCOPIC VEGETATION OBJECTS OF EXPERIMENT WHICH LED PASTEUR TO GREAT RESULTS
MARTYRS OF SCIENCE
APPARATUS WHICH PASTEUR USED TO STUDY MICROBES OF FERMENTATION

LOUIS PASTEUR

(1822-1895)

A Pioneer Biologist Who Made Modern Medicine Possible

By ADOLPH BEILIN

LOUIS PASTEUR may justly be called the greatest of the microbe hunters. He was born in Dôle, France, Dec. 27, 1822. The results of his researches and scientific discoveries have not only rendered his name immortal but benefited humanity in a way and to a degree which seem impossible to estimate.

Beginning with a relatively small though not unimportant matter, Pasteur's discovery of a cure for unsound beer and wines inaugurated a new era in the brewing industries. Prior to this, however, Pasteur won his first scientific recognition, at the age of 25, in chemistry and molecular physics. But he was essentially a biologist, and he found his true vocation in the study of microscopic organisms.

In 1860 he proved that alcoholic fermentation and the souring of milk, which were at that time considered chemical reactions, were due to the growth of microscopic bacilli, and by this discovery he founded the science of bacteriology. As he continued his researches it was his good fortune to solve a series of connected problems of the highest public and scientific significance. From that time his progress advanced by ascending steps.

In 1865 he discovered the cure for two diseases then prevalent among silkworms. From his knowledge of microbe action he was led to the production of antitoxins for the prevention and cure of diseases. This culminated in his supreme service to humanity.

By making a succession of pure cultures of a disease-producing virus, he was able to create a vaccinating form of the virus capable of causing the disease in an extremely mild form. The injection of this attenuated virus secured immunity from future attacks. He first proved the efficacy of this form of inoculation for the disease of cholera in chickens. Next he demonstrated that the vaccine was effective against the splenic fever of cattle. Crowning these discoveries, in 1885 he brought inoculation into use for the prevention and cure of hydrophobia.

The son of a humble French tanner, Pasteur became a great man and a great scientist. He died in 1895 and was buried with majestic honors from Notre Dame in Paris.

Why the Baby Has Eczema

The First of a Series of Four Articles

By
DENNIS KELLY
and
MYRTLE MEYER ELDRED

SHE NOTES THE HORRID APPEARANCE OF THE BORS AND DECIDES TO ATTEMPT A CURE

PERHAPS no ailment of quite the same degree of prevalence is so little understood by the average mother as infantile eczema. She notes the horrid appearance of the rash, takes counsel with her neighbors and decides to attempt a cure with optimistically advertised salves or ointments. Her state of confusion takes well defined lines. She is fearful that the irritation may be "catching." She has been told that baby will outgrow it and that nothing she can do will help. She is inclined to believe that her baby's stomach is too weak to digest the food he eats, but she fails to suspect any particular food and of course does not arrive at a satisfactory solution of the indigestion. She terms the rash a "baby rash," a "teething rash" or a "stomach rash" and believes that by some inexplicable miracle the baby will outgrow his tendency to suffer it. Of course there is a modicum of truth in all these generally accepted ideas. The disease is not contagious, yet members of the same family may have it. Babies do outgrow it, chiefly because they cease to respond in this particular way to their diets. It is a commonplace rash of babyhood, though it is prevalent in adulthood. Because of mineral imbalances, teething tends to aggravate the severity of the rash. It is related to a disabled digestive ability, so that "stomach" rash is a general but not an incorrect estimate of it. The speediest relief for any little sufferer from eczema will come when the mother has a more intelligent and rational picture of the whole disease and understands how each of these ideas fits into the other.

BABIES have always had eczema, or nettle rash, as it was called in the olden days; but even the most casual observer must recognize that eczema is increasing in these days of well

RASH. TAKES COUNSEL WITH HER NEIGH-
WITH OPTIMISTICALLY ADVERTISED SALVES.

fed, nay overfed babies. The baby of a past generation starved or thrived according to the scanty or bounteous supply of his mother's milk. He cried from hunger quite as often as he shrieked from colic; and the appearance of his teeth, not his discomfort or his gain in weight, indicated his right to enjoy solid food. If, perchance, his malnutrition delayed his teeth, he was fed still longer on the breast milk and denied the privilege of other foods.

TODAY, underfeeding is relatively rare among babies that have proper care. The opposite feeding program flourishes. Baby is introduced to new foods earlier and earlier in the first year, often before his digestive juices are in a condition to wrestle successfully with them. The result is that every hospital clinic has a goodly number of eczematous babies, and every doctor is faced with the problem of dealing with this tricky and baffling ailment, sometimes with disheartenings indifferent results.

Eczema is pronounced "ek' ze-ma," not "eg-ze' ma." It belongs to that family of ailments grouped under the parental name, allergy. The peculiar and distinguishing characteristic of allergy is the individual's marked sensitivity to some specific protein or proteins, or to some other food element which is excessively represented in the diet. Before embarking on a lengthy discussion of eczema, it is well to introduce some of the other well known members of the allergic family: asthma, hives (urticaria), hay fever, migraine headaches and angioneurotic edema. Some of the less familiar members of the same family group, including chronic colds, chronic vomiting, diarrhea and abdominal cramps, are forcing a recognition of their allergic nature.

If all these ailments, so varied in their characteristic manifestations, have the common relationship of food sensitivity, why do they exhibit such notably different forms? The answer lies in the type of individual who is the victim of the hypersensitivity. It is his own peculiar make-up which renders him more susceptible to one than to another form of allergy. It is quite possible that the form of his sensitivity may change as he grows older. The baby who is disposed to have colic and diarrhea may later become a victim of asthma or eczema and still later may be a sufferer from hay fever or migraine headaches. Happily, this is not a universal course. Babies, children and adults tend to build up an immunity to foods or other elements producing internal or external irritations, and this inevitably makes it possible for the immunized persons to be unaffected by the once offending element.

THE ACTUAL mechanism by which the offending proteins take up their residence in the various body tissues is still a matter of conjecture. It is believed that because of the individual's own constitutional peculiarity the foods ingested do not undergo perfect digestion. The imperfectly digested food element enters the blood stream and, because it is undigested, it is certain to prove an irritant in whatever body tissues or body cells it happens to take up its abode.

The appearance of any sort of rash on the face or body of a baby leads the mother to suspect that her child has one of the diseases of childhood characterized by rash. Scarlet fever, scarlatina, measles and even the rarer smallpox are invariably accompanied by other noticeable symptoms of illness. The mother's differentiation, then, between a disease characterized by rash and a rash due to food sensitivity can be made by a clear headed interpretation of the child's state of health. Even the most terrified mother will in a day or two, if not immediately,

be able to decide whether this rash is of temporary or more permanent character by noting the other symptoms which accompany it.

Eczema is a commonplace ailment of infancy. This observation is made by every author dealing with the subject. Eczema attacks the healthy and the sickly, the well born and the lowly, the obese and the emaciated. The rash tends to appear suddenly and disappear in the same way. Most often it exhibits itself first on head or face in single patches, which spread and enlarge until the whole body may be covered with them. Eczema breaks out, heals and then breaks out afresh. This is the nature of all allergic ailments. This is what is meant by the term "cyclic." It comes and goes and comes and goes. In eczema the child responds to his food by the development of a rash. This response grows constantly weaker and then disappears. After a short period there is a renewed irritation and a renewed response. It is this vexatious character of eczema, in addition to the multiplicity of its causes, which makes it so discouraging an ailment to combat.

It is difficult to give the lay reader a clear picture of the physical mechanism by which the food irritants result in a rash.

First, some irritation must be set up in the digestive tract. Food goes through a long process before its elements can be used by the body. In the stomach, food is transformed into simple food elements which pass into the intestines. There they are subjected to further digestion and disintegration until eventually they are absorbed into the blood stream from the intestines and are either distributed to the various organs of the body or are passed out of the body as waste.

When digestion is imperfect, some of these food elements are thrown into the blood stream in a condition which makes them act as poison instead of food. Possibly the irritating elements act directly on those nerves which carry messages to the skin. The skin dilates or contracts according to the quality of these nerve messages. When the nerves are irritated they may excite an unhealthy dilatation of the cells of the skin. Red, blistered areas appear and indicate that the blood vessels of the skin are being overstimulated and are overactive.

Perhaps the irritation may be mild enough so that a reddish, rough skin is the only noticeable symptom; but when the irritation is pronounced, the nerves stimulate the skin cells to an increasingly severe dilatation. The blistered surface ruptures, and a watery secretion appears on it. This dries and forms a crust, and the result is the typical skin rash known as eczema.

Because of the different ways in which the individual skin reacts and because of the various foods which cause the reactions, eczema is of two general types, dry and moist.

The term "dry eczema" is used because the rash is without visible blisters and does not rupture and ooze but remains dry and scaly. Dry eczema is seen more often on older infants. It is not so difficult to cure as is moist eczema, and it is apt to be less itchy and consequently less uncomfortable and distressing. Dry eczema is usually seen in reddish patches covered with dry or greasy scales. In severe cases the skin may be bright red, sore and burning. In milder cases the rash resembles a severe chapping. The eczematous patches are irregular in outline and tend to penetrate into the deeper layers of skin.

The moist eczema merits its title because of its blister-like formations, which have a tendency to rupture and exude a clear, crust-forming fluid, but which continue to show moist and weepy surfaces.

In "Diseases of the Skin in Infancy and Childhood," Fox has described the progress of rash in terms of redness, moisture, infiltration of the skin, scaling, crusting, itching and a tendency to form patches with ill defined borders. This is an unemotional description of a most dramatic picture. The baby with a swollen, crusty face digs and scratches at it with frenzied fingers or, with hands bound, rubs his face back and forth frantically on the bed until blood streams from the wounds. The blood adds its reddish brown crust to the unsightly yellow mass, and baby is a woful and unlovely spectacle of utter misery. Though the kindest thing to do is to prevent him from tearing off the crusts, his efforts to do so are pitiful to behold. It is believed that the infiltration and pus formation, which seem so much a part of the whole process of moist eczema, are infections which result from the wholesale mutilation of the area caused by scratching.

The tendency of either dry or moist eczema to show periods of marked improvement is the result of some healing ointment or the desensitization of the baby to his dietary indiscretions. During such periods the face peels and loses its flaming color. The hopeful parent looks forward to a clear, healed skin, only to have this hope shattered by a reappearance of the rash, seemingly as virulent as ever.

It is necessary to reiterate that unless some attention is paid to both the primary and the secondary causes, the rash seldom disappears permanently as the result of external applications alone. These are temporarily healing and essential to the child's comfort since they allay the intense itching. The elusive internal factors must be ferreted out and dealt with before the cure can be complete.

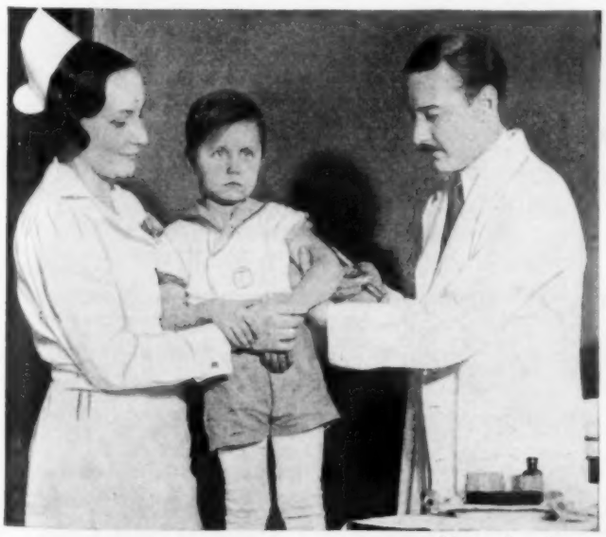
[Note.—The second article in this series will appear in the June issue. The characteristic body sites and the causative factors of eczema will be discussed.]

THE ORIENT AS WELL AS THE OCCIDENT CONSTANTLY STRIVES FOR IMPROVED HEALTH IN THE RISING GENERATION. MODERN METHODS OF CHILD CARE AND TRAINING SHOW THEIR UNMISTAKABLE EFFECTS IN THIS GROUP OF HEALTHY JAPANESE BABIES.

A STERILIZED DIAPER SERVICE SAVES TIME AND LABOR AND FREES MOTHERS FROM UNPLEASANT DUTIES. THE NURSE PICTURED BELOW IS EMPTYING THE SOILED DIAPERS INTO ONE OF THE STERILIZING MACHINES.

THE DIAPERS ARE WASHED IN A PROPHYLACTIC PLANT AND ARE RETURNED THE NEXT DAY, IMMACULATE AND STERILIZED. NURSES SORT AND PACK THE CLEANED DIAPERS.

THE SERVICE MAN DELIVERS A SUPPLY OF STERILIZED DIAPERS AND TAKES AWAY SOILED ONES.



Photos by Acme

AN OUNCE OF PREVENTION HAS LONG BEEN CONSIDERED OF MUCH GREATER VALUE THAN A POUND OF CURE. TO THE LEFT IS BEING ADMINISTERED ONE OF THE MOST RECENTLY DEVELOPED, ALTHOUGH STILL EXPERIMENTAL, PREVENTIVE MEASURES, INOCULATION AGAINST POLIOMYELITIS, OR INFANTILE PARALYSIS.

The Live Topic of the Dead Tooth

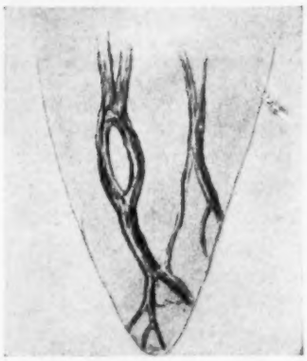
Chapter V of THESE TEETH OF MINE

By DAVID W. McLEAN

NOT SO LONG AGO, anesthesia for use in the drilling out of cavities was unknown. The dental chair was built with strong arm-rests. The hardy soul tried to pull them loose during the drilling operation. The less hardy pleaded, with reason, that he just couldn't hold still long enough to allow careful preparation of the cavity and asked whether something couldn't be done about it. Yes, indeed, something could be done! The nerve could be killed. The dentist turned to his cabinet for the drugs which in skilled hands and in most cases would devitalize the nerve without an ache or a pain.

"But," questioned the timid one, "is a dead tooth as good as a live one?"

"Just as good," replied the dentist. In perfect harmony with the technical literature of the day, he went on to explain that while a dead tooth might discolor, it could be bleached. He also made it clear that while it might become abscessed, the tooth could be opened and the infection cured by treatment, after which the tooth would be as good as ever. The dead tooth was no more prone to decay than the vital one.

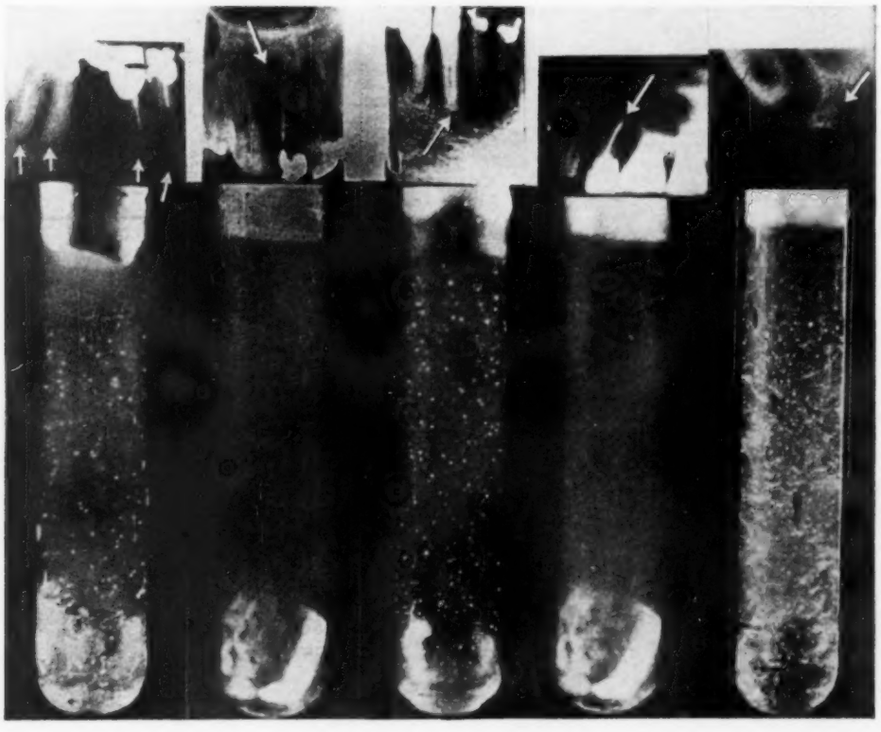


CROSS-SECTION OF A ROOT OF A MOLAR TOOTH, SHOWING THE RAMIFICATIONS OF ITS ROOT CANALS. THIS CONDITION IS OFTEN ENCOUNTERED. OBVIOUSLY IT IS IMPOSSIBLE TO FOLLOW THIS CANAL WITH INSTRUMENTS FOR THE REMOVAL OF ALL PULP FRAGMENTS AND TO INTRODUCE A FILLING. (DR. M. T. BARRETT IN "DENTAL COSMOS.")

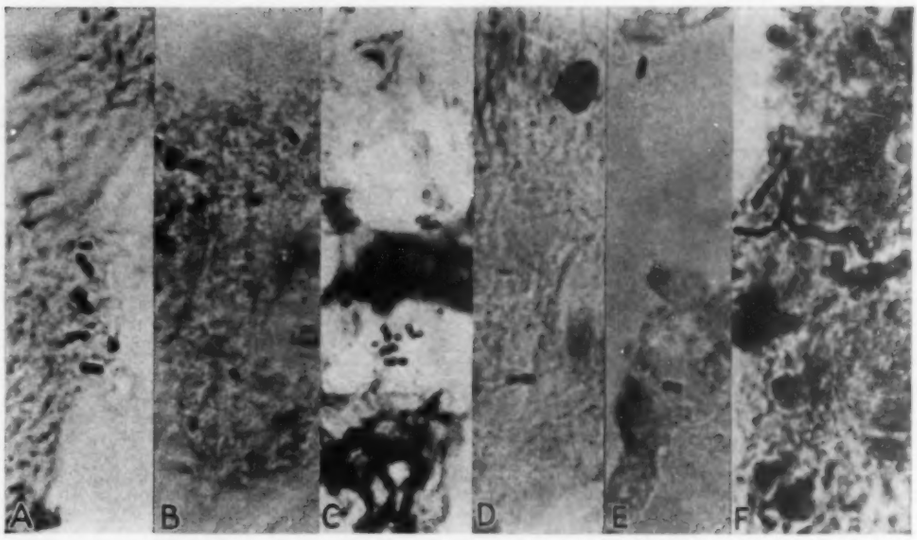
It was no more susceptible to pyorrhea; indeed some pyorrhea specialists devitalized those teeth to help tighten them in their sockets.

The upshot of such a conversation was another dead tooth. As such conversations were common from one end of the country to the other, the dentist who could kill nerves skilfully and painlessly had an assured place in any community.

In addition to the necessity of alleviating the pain of cavity preparation and relieving the pain of aching teeth, there was another reason for



CULTURES OF EXTRACTED PULPLESS TEETH TELL THEIR VARIOUS STORIES IN THE TEST TUBES. FOR ONLY THE CULTURES, NOT THE X-RAYS, CAN SHOW INFECTION. THE FIRST AND SECOND X-RAY PICTURES SHOW LESIONS AT THE ROOT ENDS OF PULPLESS TEETH; YET THE BACTERIAL GROWTH IN THE FIRST TEST TUBE SHOWS THAT INFECTION WAS PRESENT, WHILE THE ABSENCE OF BACTERIAL GROWTH IN THE SECOND TUBE PROVES THAT THERE WAS NO INFECTION. IN THE THIRD AND FOURTH X-RAY PICTURES OF PULPLESS TEETH ALMOST NO LESIONS ARE SHOWN AT THE ROOT ENDS; YET THE THIRD TEST TUBE SHOWS A PROFUSE BACTERIAL GROWTH, WHILE NO SUCH GROWTH IS PRESENT IN THE FOURTH TUBE. IN THE FIFTH X-RAY FILM A ROOT TIP, BROKEN OFF DURING EXTRACTION, IS SEEN BURIED IN THE BONE; THE TEST TUBE REVEALS A PROFUSE GROWTH OF BACTERIA FROM IT. (DR. R. L. HADEN IN "DENTAL COSMOS.")



GERMS, CARRIED FROM ONE NEST OF INFECTION TO OTHER POINTS IN THE BODY, MAY SET UP NEW INFECTIONS, WITH SPECIFIC DISEASES AS THE RESULT. ILLUSTRATIONS A, B AND C FURNISH MICROSCOPIC PICTURES OF GERMS GROWING IN THE INTESTINAL WALLS OF MAN IN CONDITIONS OF COLITIS AND ULCER. AFTER GERMS FROM THE TEETH OF PATIENTS WITH GASTRIC ULCER WERE PLANTED IN THE PULPLESS TEETH OF DOGS, GERMS WERE REVEALED GROWING ON THE STOMACH WALLS OF THE DOGS (D AND E), AND GASTRIC ULCER DEVELOPED. WHEN INFECTION FROM THESE ULCERS WAS, IN TURN, INJECTED INTO A RABBIT, AN ULCER DEVELOPED (F) IN THE RABBIT'S STOMACH. (DR. E. C. ROSENOW IN "DENTAL COSMOS.")

the large number of dead teeth now found in the mouths of middle aged patients. Back in their twenties, they were not in the habit of visiting the dentist every six months. It was usually an aching tooth which forced them to go to the dentist; and an aching tooth was usually a desperately sick tooth, with a large cavity and a nerve almost or quite exposed. Naturally there would be other cavities in the same mouth, and they would be large enough to involve the nerve. Often the careless patient finished a series of visits to the dentist with a half dozen newly devitalized teeth.

THE killing of nerves was a habitual performance. The busy dentist saw from twenty to thirty patients a day, most of whom came for the exchange of medicated cotton in dying, dead or abscessed teeth. Often at night it seemed to him that he had been running a cotton exchange!

But withal he was proud. He belonged to a profession which from humble beginnings has risen high and achieved much; and not the least of its achievements was that of devitalizing teeth. In the first half of the nineteenth century, textbooks spoke of the operation as so excruciating and unsuccessful as to be ill advised; but by 1900 it had become a fine art, and certainly it was a difficult one. The reaming and filling of the tiny, tortuous canals which tapered to the size of hairs as they reached the ends of the tooth roots was admittedly a more difficult operation than the removal of the appendix. Yet from the patient's standpoint the operation was so much easier than drilling a sensitive cavity that many patients admitted that they preferred to let cavities go until the nerves had to be killed!

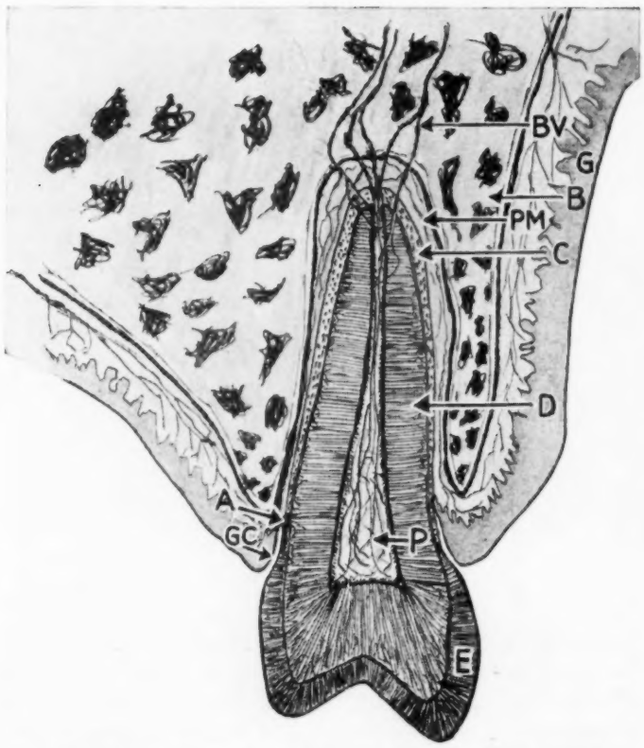
The American dentist, in particular, was proud. For the surest claim to distinction as a dentist was to proclaim oneself American, or American educated. From Russia to darkest Africa, American "gold shell crowns," triumphantly placed on dead teeth, were admired. Foreign dentists into whose offices American tourists found their way, called in their colleagues to marvel at the intricacies of American bridge work. But into the ranks of this diligent, complacent profession there was suddenly exploded a bomb which echoed round the world and blew dentistry into a new era.

In October, 1910, a celebrated surgeon, Sir William Hunter of London, delivered a lecture before the faculty of medicine at McGill University in Montreal. While expressing his admiration for the ingenuity and skill of dentists, he denounced in no uncertain terms the practice of building dental restorations on dead and infected teeth. He condemned also the gold shell crown and the cemented-in bridge work of the period. He proclaimed that patients with such dentistry had septic mouths; that they eventually became sick patients. It was a scathing indictment of American dentistry; and when it was published it brought forth much discussion from the lay press, most of it distinctly uncomplimentary to American dentists.

An American dentist, W. D. Miller, doing research work under the great Koch in Berlin, had pointed out the same things nineteen years before, without effect; but Hunter's bomb was effective enough to suit any one.

THE profession in this country was both stunned and indignant. Letters poured in on the editors of the dental technical journals, asking them to fly to the defense. Many insisted that Dr. Hunter's attack was a manifestation of international professional jealousy.

The scientist, however, must be prepared to unlearn tomorrow what he has learned today. Scientific dentists accepted the challenge. Microscopes were put in use, and material was collected; patients with dead teeth were recalled to thousands of dental offices, and x-ray pictures, still rather an innovation, checked the condition of dead teeth. A nation-wide investi-



A SCHEMATIC DRAWING OF A CROSS-SECTION OF AN UPPER BICUSPID TOOTH AND SUPPORTING STRUCTURES: G, GUM; B, BONE; PM, PERIODONTAL MEMBRANE, LYING BETWEEN THE ROOT AND ITS SOCKET; C, CEMENTUM, COVERING THE ROOT; D, DENTIN, OF WHICH THE BODY OF THE TOOTH IS MADE UP; E, ENAMEL, WHICH COVERS THE CROWN; P, PULP, WHICH NOURISHES THE INTERIOR OF THE TOOTH; BV, BLOOD VESSELS, AND GC, THE GINGIVAL CREVICE UNDER THE FREE EDGE OF THE GUM WHICH IS ATTACHED TO THE TOOTH AT A.

gation was on; the practitioner attacked the problem from a clinical standpoint, while the research dentist proceeded from the laboratory angle.

As one looks back now, one realizes that the whole concept of dental practice has changed completely since Sir William Hunter's lecture. Probably no profession has ever had to face so complete a reversal of belief or to change its methods of practice so completely.

At the time of Dr. Hunter's lecture, two types of dental abscess were recognized: the acute abscess, which was accompanied by pain and a swollen face, and which finally broke and discharged from an opening in the gum, and the chronic abscess with no pain or swelling but a more or less continuous discharge through an opening in the gum over the tooth. Even then dentists knew of course that both types carried infection. They knew that at the onslaught of the acute type the patient often went to bed sick and feverish. But they felt that the infection could be cured by appropriate medication.

The "blind abscess," with no local symptoms, was unknown. The dark shadows at the ends of roots were seen in the early x-ray pictures, but they meant nothing to the observer. In the light of Dr. Hunter's remarks those shadows were investigated. Teeth which had never ached or discharged, but whose root ends were shadowed in x-ray pictures, were extracted, and the root ends were scraped. The scrapings were planted in suitable culture mediums and incubated; the result was luxuriant growths of bacteria of both the pus producing and the disease producing types. All dead teeth with dark areas showing in x-ray pictures were then conceded to be infected.

There was another class of dead teeth to be investigated; in these teeth not only had there never been indications of trouble, but the root ends actually appeared in x-ray pictures to be just as healthy as those of teeth known to be fully alive. The investigators succeeded in coaxing away from patients a few such teeth for study and culture. It is often difficult, even today, to get the patient to part with such teeth, and it is not surprising that many dentists gave up their own teeth that the work might go on.

Along with these dead teeth of healthy appearance, the investigator also took cultures of the live teeth they resembled. For he must be sure that live teeth were not infected also and that the germs he found in dead teeth were not getting into his test tubes from the air or some other source of contamination. The investigator worked patiently and with meticulous care. When he had demonstrated that the live teeth were free from infection unless they had large cavities or fillings involving the nerve, while most dead teeth which appeared healthy were infected, he had forged another important link in the chain.

Even though the dead teeth did not show any evidence of infection in x-ray pictures, nevertheless they might be infected! That will be news today to many persons who have x-ray pictures taken of their dead teeth every six months to make sure they are not infected. Only the culture, not the x-rays, can show infection. The dental x-ray picture shows only changes in the hard structures; infection may be present for several years before enough bone is destroyed to register in the picture!

Reports of these researches began to pour in. They have been coming in ever since. But the question still remained: How was one to know that these infections were really injurious? Infection was everywhere; in the air, in food and water, in tonsils and adenoids, in gallbladders and colons and often in apparently healthy tissues of the body. Why should this particular infection, palpably dormant, be considered injurious, when physicians ignored so many other infections, or at least tolerated them as long as possible, before resorting to surgery for their eradication?

To this challenge the research worker responded by injecting infection obtained from dead teeth into rabbits. Most of the rabbits sickened and died. A few, however, did not, and this accounted, it seemed, for those patients

who were so healthy despite many dead teeth. Then it occurred to the research man to deprive one of the immune rabbits of food and keep him outdoors in the cold overnight. The injection was then repeated, and the rabbit promptly succumbed. Many repetitions of the experiment brought the same result, and so it appeared that the seemingly healthy patient with many dead teeth was safe only as long as his resistance was maintained. His immunity might be broken at any time.

THE next step was even more startling. A culture was made from the extracted dead tooth of a patient suffering from gastric ulcer. It was injected into rabbits. When the autopsy was performed it was found that the rabbits had gastric ulcer; and infection obtained from the rabbit ulcers was the same as that which had been injected! When a culture of this infected material was injected into other rabbits, gastric ulcer developed in them also.

In the same way, connection was established between dead teeth and such conditions as kidney lesions, heart valve lesions, neuritis, some forms of arthritis, St. Vitus' dance, or chorea, and anemia.

Thus was demonstrated the exceedingly important fact that while two strains of bacteria might appear to be identical, on injection into animals one might straightway attack the kidney and the other the liver or stomach. An important corollary was that infection nests, other than those about the teeth, could also cause distant lesions, resulting in specific diseases. This quite changed the point of view regarding such conditions as chronic appendicitis and chronic infections of the gallbladder and tonsils.

But do not think for a moment that such observations were not subjected to much criticism and the fire of many heated arguments! I recall one encounter between a research worker of national reputation and an equally famous practitioner. It culminated in the following challenge:

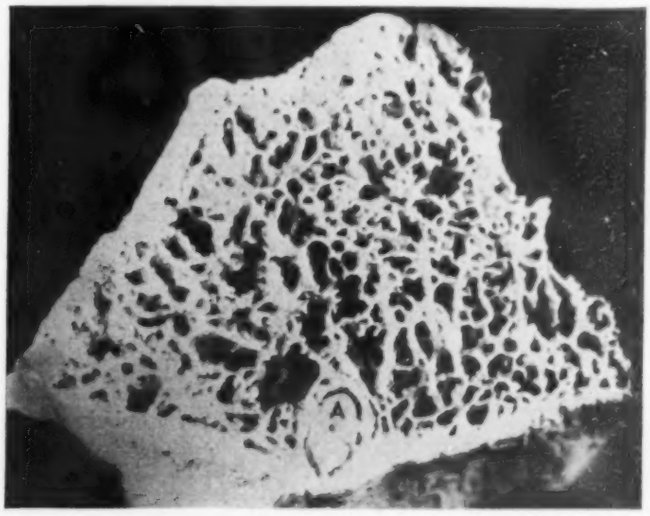
"Doctor," stormed the clinician, "you are injecting these animals with enormous doses of infection. They are subjected to one overwhelming invasion of bacteria, whereas if such infection, or its toxins, be absorbed from the human mouth, it is in minute doses over a long period of time. The human being has a chance to develop immunity, but your rabbits do not. Your experiments therefore, mean just exactly nothing!"

So it followed that the nerves of animal teeth were removed under general anesthesia, and infections were planted in the dead teeth. The animals then resumed their normal lives; their untreated brothers and sisters served as controls to insure that any lesions or diseases that developed were peculiar to the treated animals and not acquired by heredity or otherwise. In many of the animals with dead teeth there developed the lesions characteristic of the infection planted.

The focal infection theory was no longer based on clinical observation. It was scientifically established. It had come to stay. Germs or toxins could be, and were, carried from one nest of infection to other points in the body, there to set up new infections or inflammations, with specific diseases as a result.

Imagine what such revelations meant to the dentist. The patient for whom he had been devitalizing teeth must now be informed that it was all wrong and that the teeth should be removed!

Moreover, a chaotic state of affairs soon developed. While some dentists, physicians and patients had not yet seen the new light or



A CROSS-SECTION, THROUGH THE UPPER JAW, OF A DRY SPECIMEN, MADE IN THE VICINITY OF THE ROOT END OF A TOOTH. (A) IS A TOOTH ROOT, CUT NEAR ITS TIP. NOTE THE INTERLACING CROSS-BRACES OF BONE; BETWEEN THEM LIES SOFT MARROW. THE EASE WITH WHICH INFECTION COULD SPREAD FROM THE TIP OF THE ROOT (A) IS READILY VISUALIZED. (SPECIMEN IN THE COLLECTION OF DR. S. R. ATKINSON.)

refused to believe in it when it was seen, others went to the other extreme. Many dentists and physicians, finding a number of infected teeth in the x-ray pictures, ordered all the patient's teeth to be pulled, whether they were good or bad. One prominent physician stated in his lectures that he removed not only the dead teeth but also the ones he thought looked chalky!

If the patient had obscure aches or pains, headaches, anemia, high blood pressure, low blood pressure, or, in fact, almost any complaint at all, the advice was: Have dental x-ray pictures taken! See your dentist!

A measure of indignation accompanied the prescription. What possessed these dentists? X-ray film after x-ray film showed dead teeth, root canals only half filled and infections and more infections!

X-ray pictures almost inevitably meant the removal of some teeth. Many patients, noting their friends' experience, refused to have x-ray pictures made. A dental journal sent a questionnaire to its readers relative to their x-ray experience. One question was: Have any of the patients for whom you have made dental x-ray pictures subsequently lost their hair?

"No," one wag replied, "but a great many have lost their teeth!"

The lay press was full of the new "science." The public, too, wondered what had been the matter with dentists. It has been said that the mistakes of the physician are buried, those of the lawyer are hanged, but those of the dentist stare him in the face forever. Certainly dead teeth stared at him from every x-ray picture!

In the light of new knowledge, old and accepted procedures, no matter how conscientious or skilful, are often found to be useless or harmful. However, the more skilful they were, the less harmful they proved. It was so in dentistry. Those patients who had visited their dentists often, for the discovery and filling of small cavities, had fewer dead teeth; and since they had devoted the time and money necessary to procure highly skilled dental services, their dead teeth were less severely infected.

The years following Dr. Hunter's attack were busy and trying ones for the dentist. A stream of patients at the office, each with new problems to be solved, had to be given a new vision of the need for a clean mouth, for the prevention and early cure of decay. Dentists began doing clinical work at the hospital, coupled with bacterial investigations. Midnight oil had to be burned in reading the stream of research data pouring in through the technical journals. A new conception of practice meant new procedures to be worked out, new types of crowns and bridges, and new requirements to be met in the preparation and filling of cavities. The ancient art of dentistry was growing into the modern science of dentistry, but not without growing pains!

There are some interesting points about the dead tooth. First of all, a dead tooth is not a dead tooth. The reports of its death are greatly exaggerated. It is only partly dead; therein lies its menace. If it were wholly dead, nature would proceed to slough it off and throw it out of the house.

In the center of the tooth, from the root end to about the center of the crown, is a hollow chamber filled with soft pulpy flesh. This flesh is known to dentists as the pulp and to patients as the nerve. It contains nerves and blood vessels.

From the pulp's outer layer of cells there pass out microscopic cell extensions known as the dentinal fibrils. They *(Continued on page 472)*

AMERICAN MEDICAL ASSOCIATION RADIO PROGRAMS

The American Medical Association Broadcasts Weekly over the Networks of the National Broadcasting Company and the Columbia Broadcasting System

National Broadcasting Company

Middle Atlantic States
WJZ New York
WSRY Syracuse, N. Y.
KDKA Pittsburgh

East North Central States
WCKY Cincinnati
WENR Chicago
WIBA Madison, Wis.

West North Central States
KSTP St. Paul
WEBC Duluth, Minn.
KFYR Bismarck, N. D.
KWCR Cedar Rapids, Iowa
WREN Kansas City, Mo.
KWK St. Louis
KSO Des Moines, Iowa

South Atlantic States
WBAL Baltimore
WMAL Washington
WTAR Norfolk, Va.
WPTF Raleigh, N. C.
WWNC Asheville, N. C.
WSOC Gastonia, N. C.
WIS Columbia, S. C.

East South Central States
WSM Nashville, Tenn.
WMC Memphis, Tenn.
WJDX Jackson, Miss.

West South Central States
KVOO Tulsa, Okla.
WKY Oklahoma City
WFAA Dallas, Texas
KTBS Shreveport, La.
WOAI San Antonio, Texas

The broadcasts over the National Broadcasting Company network are scheduled each Tuesday at 5 p. m. eastern daylight saving time (4 p. m. eastern standard time).

May 7. Mothers of America, Dr. W. W. Bauer.
May 14. Training Good Doctors, Dr. Wm. D. Cutter.
May 21. Pain, Dr. W. W. Bauer.
May 28. Problems of American Medicine, Dr. Morris Fishbein.

The broadcasts over the Columbia Broadcasting System are scheduled each Thursday at 4:30 p. m. Chicago daylight saving time (3:30 p. m. central standard time).

May 2. Being Your Age, Dr. W. W. Bauer.
May 9. Saving Our Mothers, Dr. W. W. Bauer.
May 16. Children's Eyes, Dr. W. W. Bauer.
May 23. Saving Our Eyesight, Dr. W. W. Bauer.
May 30. Eye Accident Prevention, Dr. W. W. Bauer.

Programs are available to the stations listed at the right and left. Local stations may not broadcast network programs regularly and in some instances may not broadcast them at all. Local requests for programs might cause local stations to broadcast them.

Columbia Broadcasting System

West North Central States
WCCO Minneapolis
WNAX Yankton, S. D.
KSCJ Sioux City, Iowa
KFAB Lincoln, Neb.
WMT Waterloo, Iowa
KMBC Kansas City, Kan.
WIBW Topeka
KFH Wichita

East North Central States
WMBD Peoria, Ill.
WISN Milwaukee
WBBM Chicago

West South Central States
KOMA Oklahoma City
KRLD Fort Worth
WACO Waco
KTSA San Antonio
KTRH Houston

Mountain States
KLZ Denver
KVOR Colorado Springs
KSL Salt Lake City
KOH Reno

Pacific States
KERN Bakersfield
KMJ Fresno
KHJ Los Angeles
KOIN Portland
KFKB Sacramento
KGB San Diego
KFRC San Francisco
KDB Santa Barbara
KOL Seattle
KFPY Spokane
KWG Stockton
KVI Tacoma

Acme

SAFETY FIRST, LAST AND ALWAYS. IN FURTHERANCE OF A SAFETY CAMPAIGN LAUNCHED TO REDUCE AUTOMOBILE ACCIDENTS, MOTORISTS OF LOS ANGELES AND VICINITY PASTE "LIVE AND LET LIVE" SIGNS ON THEIR CARS.

E. Meerkamper

DAINTY CROCUS BLOSSOMS IN PROFUSION SURROUND THE "LADIES' CHURCH" NEAR DAVOS, SWITZERLAND.

A NEW YORK HEALTH DEPARTMENT EXPERT SHOWN AT THE RIGHT, COLLECTS LARVAE FOR EXAMINATION IN A WAR AGAINST MOSQUITOES.

Ewing Galloway

MARSH WEEDS ARE KEPT CUT TO PREVENT MOSQUITOES FROM BREEDING.

Ewing Galloway

Ewing Galloway

POURING CRUDE OIL ON MARSH WATERS TO KILL WIGGLETAILS IS PART OF THE CITY'S YEARLY CAMPAIGN AGAINST MOSQUITOES.

A HOUSEWIFE LOOKS at

XX
Committee Acceptance of Infant Foods

By DORIS W. McCRAY

John Barry, Jr.

CHILD HEALTH DAY FOCUSES THE ATTENTION OF THE NATION ON PROBLEMS OF CHILDHOOD, WHICH AFFECT NOT ONLY CHILD HEALTH BUT ALSO THE HEALTH OF THE POPULATION AS A WHOLE AND OF THE FUTURE GENERATIONS.

EVERY ONE LOVES a baby who is bright eyed and chubby fisted, who has dimples on his knees and who gurgles and coos with delight at every object that attracts his attention. The adorable little coquette who has a rose petal complexion and fair silky hair wins many a heart with her baby smile. Surely it is the prayer of every mother that her child may grow in health, strength and beauty. Yet the average young woman knows less about babies than she knows about other branches of "domestic science!"

Child Health Day focuses the attention of the nation on problems of childhood, which involve not only child health but the health of future generations. The work of the American Medical Association is of inestimable value in its effect on child health as well as on the health of the population as a whole. In this article, we are especially concerned with the work of the Committee on Foods in accepting food preparations for infants.

Physicians have learned to look for the Seal of Acceptance of the Committee on Foods of the American Medical Association in advertisements of food preparations which appear in medical journals and in advertisements which come to their offices through the mail since the Seal signifies to them that both the product itself and the advertising claims advanced for it have been carefully considered and accepted by the Committee. Physicians feel confident in selecting those accepted foods which fit the needs of individual patients whom they have examined and which they know have been accepted by an impartial group who consider both the food and its advertising acceptable.

The following extremely important decision on "Feeding Formulas for Infants in Advertising to the Public" has been announced by the Committee on Foods of the American Medical Association:

The feeding of the baby during the first year is of fundamental importance to its health. Wrong feeding may even be fatally disastrous. For this reason every infant, the breast fed and doubly so the artificially fed, should be under the supervision of a physician experienced and skilled in the care and feeding of infants.

The feeding of an infant by routine feeding formulas and instructions distributed by food manufacturers, or according to directions, printed material or advice of any person other than the attending physician who can personally observe the condition of the baby, may seriously endanger the health of the infant.

The promulgation of feeding formulas in advertising to the laity is considered to be in conflict with the best experience, authoritative judgment and basic principles in infant feeding and is not permissible. No objection is taken to published directions for the preparation of mixtures for use in infant feeding.

A YOUNG wife who finds that she has the responsibility of adjusting her own diet to nourish her child becomes most keenly interested in food. Actual building materials for bones, muscles and tissues are needed; these building materials are calcium, phosphorus, iron, magnesium and several other minerals, as well as proteins, fats and carbohydrates. If the materials are not available in the mother's food or if they are not properly digested and absorbed by the blood stream to be utilized by the growing child, they are drawn from the mother's own teeth and tissues.

the COMMITTEE ON FOODS

Enormously concerned with the health and happiness of her child, the prospective mother consults her physician for advice on diet and exercise and for careful, constant scrutiny of her actual physical condition for six or seven months previous to the birth of her child. She will greatly increase the chances of safe arrival, reception and welcome of her child if she follows the instructions of the physician meticulously.

WHETHER or not the young offspring will be supplied with an adequate amount of satisfactory food depends largely on the nutrition and health of the mother during these important months, and much can be accomplished through proper diet, exercise, fresh air, rest and freedom from worry or excitement. In many cases, a satisfactory flow of milk can be established if the mother carefully follows her physician's recommendations before the birth of the child. There is no single, magic food that she can eat which will accomplish the purpose, but she can follow a carefully planned regimen and diet. Mother's milk is normally best adapted to the requirements of the infant; however, in some cases the supply may be scanty or unsatisfactory, or it may fail. In the larger cities, it is often possible for a wetnurse to supply clean, satisfactory milk that agrees with the baby. Or the physician may prescribe one of the special infant foods either for supplementary or almost complete feeding.

The cow, commonly called on to contribute milk when mother's milk is unavailable, does not manufacture milk which is entirely satisfactory in chemical composition or physical properties for infant feeding. This situation is partially explained by the fact that the cow has four stomachs, which form about 70 per cent of the digestive tract, whereas man has only one stomach, which forms approximately 20 per cent of the digestive tract. The cow's milk must be modified for the infant.

The baby's feeding formula must be adjusted to his age, weight and digestive capabilities. No two babies are alike. A physician must actually be familiar with the baby, must personally have observed the child's progress and must know his history and parentage in order to decide on the right formula for his food.

Though carefully conceived, no theoretical formula or food is satisfactory for all babies. The exact quantity of food required by this individual baby is an important factor. Certain foods and food constituents are not well tolerated by individuals. A food may be poorly digested, and in some cases it may cause a slight diarrhea or serious digestive disturbance. From a theoretical standpoint, one food may be as good as or even better than another; however, it may not be good at all from the standpoint of the baby. For instance, lactose, the natural sugar in milk, would be theoretically the best kind of carbohydrate one might add to cow's milk in order to raise the sugar content to equal that of human milk, but in many cases, one of the other carbohydrates is better tolerated by the infant.

There is a considerable choice of carbohydrates that may be added to the milk for the baby's formula. These include common cane sugar, known as sucrose, and corn syrup, powdered corn syrup, preparations of maltose and dextrose, dextrins, lightly toasted wheat flour and also other cereals.

The average composition of breast milk is fat, 3.5 per cent; protein, 1.5 per cent; lactose, 6.5 per cent; water, 88.3 per cent; mineral salts, 0.2 per cent. The average composition of cow's milk is fat, 3.5 per cent; protein, 3.3 per cent; lactose, 4.7 per cent; water, 87.7 per cent, and mineral salts, 0.8 per cent. It will be seen that whole, undiluted cow's milk provides protein content more than twice as high as that of mother's milk; it provides higher caloric value and higher mineral content per given volume than are to be found in mother's milk.

The amount of calcium found in the casein of cow's milk is much larger than in mother's milk. The physical property of the casein is quite different; undiluted cow's milk is not well digested by the infant, since the curds formed are too hard and too large. Curds formed when mother's milk reaches the stomach are smaller and softer or more flocculent.

The iron content in both mother's milk and cow's milk is deficient for nutritional needs. The amount of iron stored in the body of the infant before birth usually suffices for the first few months; but the infant's diet subsequently should be supplemented with foods relatively rich in iron, such as beef juice, chicken broth and finely sieved vegetables or juice from vegetables, in order that, as the infant grows, the iron content of the diet may be sufficiently high to prevent nutritional anemia.

THE other mineral constituents of cow's milk may be brought into alinement with those of mother's milk by the simple method of diluting the cow's milk with water in the preparation of the feeding formula and adding a satisfactory carbohydrate, which tends to make the percentages of fat, carbohydrate, protein and salts more nearly like those of mother's milk.

Cow's milk for the infant must be the best obtainable. Federal, state and municipal definitions and standards have been established for milk that is sold fresh or is used in the preparation of evaporated, condensed and dried milk; there are likewise definite federal standards for these canned or packaged milks. The Seal of Acceptance of the American Medical Association appears on the label of many brands which have met such federal requirements and the standards set by the Committee.

THE dried and evaporated milks are more easily digested than fresh cow's milk modified, for the processes of preparation modify the milk protein so that soft, readily digestible curds instead of tough curds are formed; in the commercial process of preparation the fat is broken down into very small particles and distributed homogeneously throughout the milk and is therefore more easily digested. Such differences in the physical nature of the curds produced by different kinds of milk account for the physician's choice of various accepted brands of milks or infant food preparations on the market. Successful experience of physicians with individual products accounts for their choice of the type of milk or special infant food for use in preparing the formula for the individual baby.

Evaporated milk has become exceedingly popular with pediatricians because it is always available everywhere; it is uniform in composition; it keeps well; the curds are soft, and it agrees with many babies better than uncooked milk. The homogenization process of forcing the milk through exceedingly small apertures in order to break up the fat globules and to prevent the fat or cream from rising to the top of the cans also accomplishes the purpose of making the fat more easily digested by babies.

Dried milk has the same advantages for infant feeding as other heated milk. It may be purchased as dried whole milk, dried skimmed milk or whole milk with added cream, dried and then packaged.

A notice of acceptance of one brand of powdered whole milk, which appeared in *The Journal of the American Medical Association,* describes it as "a powdered spray-dried whole milk hermetically sealed in cans in an atmosphere of nitrogen." The purpose of the replacement of oxygen by nitrogen is to prevent development of rancidity flavors. It is also stated that "the milk used is from tuberculin tested cows and is collected under carefully supervised conditions. Each delivery is tested for bacteria, fat, odor, acidity and sediment and it is stored at a low temperature." The same company makes a partially defatted milk designed for infant feeding formulas in which low fat content is desired, and it offers for sale the same powdered milk with added maltose and dextrins, to be used in those cases that will be suited by the proportion of milk and carbohydrate thus provided; the manufacturer claims that it is "for use in infant feeding as directed by the physician." The same concern offers maltose and dextrins with vitamin B, as obtained from added wheat embryo and yeast, as well as maltose and dextrins both with and without added table salt.

John Barry, Jr

THE CHILD'S APPETITE IS NOT AN INFALLIBLE GUIDE TO THE AMOUNT OF FOOD REQUIRED; THAT DEPENDS ON HIS AGE, WEIGHT, ACTIVITY AND ABILITY TO DIGEST THE FOOD.

SOME special infant foods are advertised to physicians as furnishing all that the normal infant needs, in correct proportions, except possibly vitamin C as it is furnished by orange or tomato juice. The composition of these foods is furnished in the notice of acceptance published in *The Journal of the American Medical Association,* so that the physician may judge whether the prepared food fits the needs of the infant. When these prepared foods are diluted according to special directions, they approximate breast milk in percentage composition of fat, carbohydrate and protein. Some of these foods contain animal and vegetable fats in place of milk fat. Such foods are also offered for subnormal infants with weak digestive powers. Powdered protein milk, noncurdling; liquid protein milk and the like are intended for meeting baby's nutritional needs under abnormal conditions. Such foods are not similar to mother's milk and are not intended to be so. Their purpose is to take care of the baby's food needs during intestinal upsets or disorders when the usual milk or special infant food preparations are not tolerated. These protein milks are better adapted to the weakened digestive powers of the subnormal infant. They should be used only under the care of the supervising physician. Some special infant foods have

added cod liver oil for vitamin D and added yeast extracts and wheat embryo for vitamins B and G; they may have salt or some other suitable chemical added; others bear the claim that the casein is more easily digested because it has been specially treated. The distinctive merits of these foods containing many ingredients are advertised suitably in medical publications.

A useful food for increasing the lactose and calcium content of the formula is made of dried milk whey; it is readily miscible with water or milk, and it is useful in the preparation of special diets.

Cultured milk or acidified milk is sometimes called for in special diets. Whole or skimmed milk is soured with a bacteria culture producing lactic acid, then homogenized and powdered, and offered plain or mixed with dextrins and maltose, for use in infant feeding according to physician's instructions. In the production of another special food, milk is soured with acetic acid, the whey is drained off, and the curd is dried to a powder which is high in protein. In cases where hypersensitiveness to raw milk is exhibited the physician may require that the milk be boiled, or he may prescribe acidified milk or cultured milk.

SOME persons manifest an exaggerated or unusual sensitivity to certain foods, and may be made ill by eating them. This condition, which is known as food allergy, is more common than is usually supposed; it is probable in 30 per cent of all persons and is responsible for many human ills, among them digestive disturbance and eczema in infants.

Some babies are made violently ill by small amounts of egg white, and occasionally the egg yolk produces allergic symptoms; it should be offered as a mere taste, when first introduced in the infant's diet. Frequently the yolk of one egg is given during the first year, and a whole coddled egg is often prescribed for the older child. In many cases a food may be given in extremely small quantities and gradually increased to larger amounts. Food allergy becomes progressively less frequent as age increases, but its occurrence in adult life is more frequent than is commonly supposed.

A dietary preparation free from animal and milk protein for infants with milk idiosyncrasy contains soy bean flour, olive oil, arrowroot starch, maltose and dextrins, dicalcium acid phosphate and common table salt. Another prepared food is free from cereal, egg and milk, for children who are allergic, or sensitive to the proteins of these foods, yet it is designed to supply all the nutritive requirements for normal growth; it consists of a cooked mixture of cauliflower, tomatoes, beef, carrots, spinach, olive oil, sucrose, maltose and dextrins, gelatin, cod liver oil and salt, prepared by an efficient method for retention in high degree of the natural mineral and vitamin values. Such special foods are known to the physician by their brand names.

Strained or comminuted vegetables are fed at a much younger age than was formerly supposed possible; they are useful for their laxative effect, their vitamin content, especially vitamin C, and their iron, which is liable to be insufficient in the milk formula. Feed vegetables as the physician directs; begin with only a half teaspoonful the first few days, and increase gradually until the desired amount is included daily. It is not necessary to be changing constantly from one vegetable to another. The same vegetable may be used for short periods without danger that the baby will become tired of it. This is also economical; the physician, however, may indicate changes in vegetable from time to time in order that the baby may be trained to take new foods and obtain the nutritional advantages of various vegetables. The vegetable should be fed from a spoon, so that the baby will become accustomed to the texture and appearance; he will learn to eat from the spoon, and he will be sure of getting the required amount, which might not be the case if the vegetable were mixed with the milk and the entire milk feeding were not consumed.

Some cereals are designed especially for infants, since they are very fine and smooth; some, in addition, contain an unusually large proportion of vitamin B. Such cereals are available as canned strained cereal for baby, or in dry, packaged form with careful directions on the label for cooking. An accepted brand of strained cereal is available in 10¼ ounce cans; it is thoroughly cooked for infants, although it may require slight warming; young infants do not want cereal served piping hot.

In some instances, cereals are added to the infant's diet at from 3 to 5 months of age, beginning with 1 tablespoonful a day and increasing gradually to about 5 ounces twice a day before the baby is 1 year old.

In addition to the milk which has been discussed, boiled water should be offered between regular feedings.

ORANGE juice is given, even to breast-fed babies, for its vitamin C content. Probably the physician will suggest that ½ teaspoonful be given daily to the infant, a week or two after birth, and that the amount be increased gradually to 2 or 3 teaspoonfuls daily for the 3 month old infant and that the amount be further increased to 2 or 3 tablespoonfuls by the time he is 10 months old. Strained tomato juice, unsweetened pineapple juice and other fruit juices may be substituted for the orange juice in some cases. Fruit juice is important for vitamin C, which is useful in prevention of scurvy.

Cod liver oil is given both to prevent rickets and to insure good growth. The proper amounts

of calcium and phosphorus as well as vitamin D are needed for proper skeletal development and for building tooth structure. Cod liver oil also furnishes an exceptionally large quantity of the growth-stimulating vitamin A, which is also found in cream in varying amounts, according to the rations of the cow and the time of the year. Butter and cream are not as dependable sources of vitamin A in the winter as they are in summer. Cod liver oil is temporarily discontinued if the baby is ill or if the weather is extremely hot, and concentrates may then be substituted for it.

Carotene, one of the principal coloring matters of carrots and a precursor of vitamin A, is another possible addition to baby's diet which the modern physician considers.

Regardless of the kind of food prescribed, it is necessary to prepare it accurately for the infant and to observe surgical cleanliness in the handling of food and bottles. Of course, the nurse's hands should be thoroughly scrubbed before she touches the utensils for mixing the baby's food; however, the fingers should not be permitted to touch boiled bottles or the food itself.

The physician tells the nurse or mother the amount and kind of milk and carbohydrate food needed in twenty-four hours, the volume or number of ounces to be given in twenty-four hours, the number of feedings into which the daily food is to be divided and the intervals at which the food is to be given. At birth, the infant is probably given feedings every three hours, with one night feeding, which makes a total of seven feedings in twenty-four hours; later feedings are given every four hours, totaling six feedings in twenty-four hours; at 3 months of age the night feeding will probably be omitted, and only five daily feedings will be given. The normal breast-fed infant will probably be weaned at the age of 9 or 10 months, first by the substitution of one feeding a day for a nursing, and later by the introduction of a second feeding, until the child is finally taken from the breast entirely. *(Continued on page 477)*

THERE ARE MEN AND CLASSES OF MEN THAT STAND ABOVE THE COMMON HERD; THE SOLDIER, THE SAILOR, AND THE SHEPHERD NOT UNFREQUENTLY; THE ARTIST RARELY; RARELIER STILL, THE CLERGYMAN; THE PHYSICIAN ALMOST AS A RULE. HE IS THE FLOWER (SUCH AS IT IS) OF OUR CIVILIZATION; AND WHEN THAT STAGE OF MAN IS DONE WITH, AND ONLY TO BE MARVELLED AT IN HISTORY, HE WILL BE THOUGHT TO HAVE SHARED AS LITTLE AS ANY IN THE DEFECTS OF THE PERIOD, AND MOST NOTABLY EXHIBITED THE VIRTUES OF THE RACE. GENEROSITY HE HAS, SUCH AS IS POSSIBLE TO THOSE WHO PRACTICE AN ART, NEVER TO THOSE WHO DRIVE A TRADE; DISCRETION, TESTED BY A HUNDRED SECRETS; TACT, TRIED IN A THOUSAND EMBARRASSMENTS; AND WHAT ARE MORE IMPORTANT, HERACLEAN CHEERFULNESS AND COURAGE. SO IT IS THAT HE BRINGS AIR AND CHEER INTO THE SICK ROOM, AND OFTEN ENOUGH, THOUGH NOT SO OFTEN AS HE WISHES, BRINGS HEALING.

—*Robert Louis Stevenson.*

In the June Issue, Hygeia Adds Her Tribute to the Physician

In "The Challenge of Medicine," *Dr. Wingate M. Johnson* issues a challenge to the world to match the spirit of the medical profession: "During the revolutionary changes through which our country has passed in the last four years, it seems to me," he writes, "that medicine has less to apologize for, and more to be proud of, than any other profession or occupation in the world." These statements by Dr. Johnson are not idly made; they are not unsubstantiated; they are backed by clear logic, keen observation and indisputable evidence.

"For many years, article after article has been published in various magazines on the subject, with very slight variations, 'A Patient Looks at Her Doctors.' It occurs to me that it is high time for an exchange of glances," writes *Donald Whyte* who, in "A Doctor Looks at His Patients," peers at them from the kindly shadow of anonymity. "While my glance is meant to be somewhat penetrating and analytic, as befits a physician," he explains, "I trust it will also have in it much of the friendly interest and kindness that is part of our professional heritage."

"Worry, like many other human characteristics," declares *Dr. John P. Koehler,* in an article entitled "Why Worry?" has its assets and liabilities. . . . Unnecessary worry about disease should be fought as bitterly as the disease itself. A little more worry at the right time and a little less at the wrong time should contribute materially to the health and happiness of every one."

In "The Doctor's Scotland Yard," *Dr. Robert A. Kilduffe* presents an intriguing series of strange cases in which, in true Sherlock Holmes style, Dr. Robert Trebor, clinical pathologist, Inspector Carey of the homicide bureau, and Gavin Holt, writer, delve into the mysteries of certain medical problems and physiologic phenomena.

These are but a few of the many interesting articles scheduled for the June issue. Among others there will be "Chemists, Dyes and Doctors," in which *Dr. Carey P. McCord* tells of the birth of the coal tar dye industry and describes the medicinal uses to which various dyes have been put; "Country Doc," a stirring story by *Homer Croy;* Medical Men Who Have Loved Music," by *Robert Pollak;* "A Man's Best Friends," another of *Lucretia Penny's* excellent contributions, and "Eavesdropping on the Doctor," a play by *Dr. Henry F. Stoll.*

EYE DISEASES IN ADULTS

Chapter X of THE EYE BOOK

By

HYMAN COHEN

EVEN AS HIS WIFE HAD HIM BY THE ARM, HIS FOOTSTEPS WERE NEWLY HESITANT AND SLIGHTLY SHUFFLING. HIS EYES LOOKED NORMAL, AND NO TROUBLE WAS DISCOVERABLE INSIDE THEM, EXCEPT AGAIN THE STARK BLUISH WHITENESS OF THE DISK.

Part II

IRITIS is an inflammation of the iris. Often it is accompanied by an inflammation of the ciliary body, from which the iris springs; it is then called iridocyclitis.

Both the iris and the ciliary body are part of the middle coat of the eye shell, or uvea. It is the most vitally important of the three coats for the health of the eye because it carries the blood supply and manufactures the other fluids of the eye. Though the iris is purely mechanical in its function of acting as a shutter to regulate the light, the fact that it consists mainly of blood vessels causes it to be exposed to a host of disease-producing elements that are carried by the blood and that affect the body as a whole. The iris is not an essential part of either the conducting or the sight perceiving apparatus; nevertheless when it is inflamed, it is a source of the greatest possible damage to the eye. Such a condition is liable to result in more ill consequences than almost any other single eye affliction. It is a case of the innocent bystander being attacked and turning aggressor.

What are the causes of iritis? Any infection, poison or noxious material of any kind that gets into the blood and causes trouble here and there in the body is liable, sooner or later, to cause disease of the iris. There can be all sorts of trouble in all sorts of ways. Many cases of iritis are caused by syphilis. Gonorrhea elsewhere in the body, too, affects the iris occasionally. Pus infections in teeth and tonsils may invade the iris. Rheumatism and gout entangle it in their widespread disease net. Tuberculosis, breaking out in a rampage from where it first started, occasionally hits the iris. Autointoxication from an ill functioning digestive system pours its poisons into it. Diabetes sometimes produces inflammation. Often the iritis is secondary, due to disease spreading to it from a neighboring structure. Last but not least is a wounding of the iris from the outside with attending infection. This is possibly the most acutely serious of all the causes and will be described separately under sympathetic ophthalmia.

One or both eyes may be involved. The case may be acute or chronic, mild or severe. Recurrences are frequent. In the acute cases there is pain in and about the eye, often worse at night,

oversensitiveness to light, watering of the eyes and dimming of sight.

Some of the resultant changes in the eye can be easily seen. A pink, circular band shows in the white of the eye, immediately next to the cornea and spreading outward. The pupil is much smaller than normal and often slightly grayish instead of pure black; it may be pulled out of shape so that it is no longer round. If the inflammation is severe and prolonged, the iris changes color: if the iris is naturally blue, it turns green, and if it is brown, it becomes muddy looking, like old brown leather.

If the ciliary body is involved, the disease is termed iridocyclitis. There is then swelling of the upper lid, pain when pressure is made on the eyeball and visible changes in the front chamber. In mild chronic cases all these symptoms may be absent, but there is grave impairment of vision.

In its worst form the disease spreads to all the neighboring structures and leaves behind many permanent disabilities such as lessened sight, disfigurement and blindness.

To prevent iritis and iridocyclitis, the causes, one and all, should be eliminated before the trouble begins, or at least as soon as the first warning comes.

To cure such conditions is the office and burden of the eye physician. In the treatment it is important to employ rest in bed, good elimination, hot moist compresses, shading of the eyes from direct light, and absolute rest of the well eye.

Being a member of the great community that is the human body, the eye naturally shares in the body's well being and likewise in its misfortunes. When the body as a whole is attacked by disease, or when there is a family squabble inside the body, the eye sometimes becomes involved in the fight and is hurt. Because of long association it has a certain tolerance to the ill brewings that go on within the body; it gets hurt, and sometimes badly, but it has a fair chance to retain its integrity, to make efficient use of the general protective powers of the body as a whole. "It's all in the family."

The case is different when the eye is attacked directly from without and suffers a perforating injury. Here the assault is sudden and violent; to serious injury, infection is usually added; the eye's integrity and resistance are destroyed, and it is overcome and helpless. Such a cause is always an accident as the result of carelessness or mischance. These cases occur with sufficient frequency to be described in particular.

A nail, a wood splinter, a piece of stone or metal, a breaking tool or part of a machine, a drop of "shot" or other projectile may fly up and pierce the eye. In children's cases a pointed knife, scissors or a fork sometimes hits the eye; almost any object may tear into the eye.

The danger is greatest when the site of the perforating injury is ¼ inch from the boundary line of the cornea, resulting in exposure of and damage to the ciliary body, the "touchiest" of the eye structures. Such an injury is followed by destructive inflammation, great loss of sight and often by atrophy of the eye and blindness.

If the injury is not in the zone of greatest danger, it happens, although rarely, that the eye apparently recovers and good vision is retained, but in such a case there is no telling when the trouble may begin again.

There is a still greater danger, that of the lurking and constantly threatening possibility of the disease attacking the other eye, or sympathetic ophthalmia. The treatment of such a case requires courage and decision on the part of the patient, strict observance of the advice of the physician and the best medical judgment available.

If the injured eye heals and retains a useful amount of sight, surgical intervention is not necessary, provided there are no symptoms of irritation and pain in the eye and provided, furthermore, that there are no symptoms of irritation in the well eye. Even so, the eyes must be under constant observation. If the injured eye is irritable, it must be removed. If it is not irritable but is sightless, it should be removed nevertheless, because it is a constant source of danger to the well eye and may result in that dread disease, sympathetic ophthalmia.

Sympathetic ophthalmia is a case of an "eye for an eye," a good eye for a bad eye. The condition can be best described by the simple terms of the question and answer method.

Question.—What is sympathetic ophthalmia?

Answer.—When one eye is diseased because of a perforating injury, it is probable that the other eye too will develop the same disease, will "sympathize."

Q.—Why is it so dangerous?

A.—Because in its nature it is a disease that destroys sight; and if both eyes should be involved, complete blindness is liable to result.

Q.—How is the disease transferred from the bad eye to the good eye?

A.—The manner of infection is not definitely known. There are several theories. Perhaps it is this way: The injury to the first eye is in a part of the most vital, blood-carrying coat, the choroid. Infection either is carried in by the perforating object or enters the torn eye later. The blood sends out a great mass of protecting cells to battle with the infection, to surround the infective matter and to isolate it. In this manner little jails are formed that wall in the infective bacteria. While they stay walled in within jails, the bacteria develop a liking, an affinity, for the eye tissues and the particular environment, which is duplicated in no other part of the body except in the other eye. Time

goes on. Now, either because the cells that are sent by the blood to be jail keepers grow tired, or because the bacteria wax strong, or because they are forced out by the blood stream, or for some other reason they break out of the prisoning walls and get into the blood stream. When they seek to settle again in some organ, they find that the well eye is more like home to them because of their previous residence in its fellow, the injured eye. They settle there by preference, and the well eye is now the scene of the same destructive process that destroyed the eye first injured.

Q.—How soon after the first eye is injured may the other eye be affected?

A.—Any time from two weeks after the first injury to as many as forty years later, but usually from four to eight weeks after the injury to the first eye.

Q.—Are there any ways of preventing, by ordinary means and by antiseptics, the spread of the disease from the first eye to the second?

A.—No such means are known to be of any use.

Q.—What are the first indications that the well eye, too, is falling victim to the disease?

A.—There are certain irritative symptoms in the good eye, such as oversensitiveness to light, the presence of tears and pain and often a difficulty in accommodation, so that doing anything at close range to the eye is a hardship and such work has to be given up.

Q.—What happens next?

A.—Inflammation of the second eye sets in, but waiting until that happens must not be allowed on any account, for it is then too late to save the second eye.

Q.—If the second eye should become involved, is the disease as bad as in the first?

A.—It is usually much worse.

Q.—How can the well eye be protected?

A.—The injured eye should be removed when there is no chance that it will retain any sight, or even when it has some sight left but is subject to attacks of irritation and pain. It certainly must be removed when it is blind or when the other eye shows decided irritative symptoms.

Q.—If the other eye is already inflamed, does removing the first eye do any good?

A.—Yes; it lessens the severity of the attack in the sympathizing eye. Sometimes it happens that if the second eye is involved too late to enucleate the first, in the end the sight in the first eye may be better than in the second.

Q.—Is there any other treatment besides removal?

A.—For the relief of pain and other symptoms, yes; to save the other eye, no.

Q.—Is the removal of the eye a very serious operation?

A.—Not ordinarily.

In all such cases one should be guided by the best medical judgment. The information here given is only for the purpose of facilitating intelligent cooperation between the patient and the eye surgeon.

A NAIL, A WOOD SPLINTER, A PIECE OF STONE OR METAL, A BREAKING TOOL OR PART OF A MACHINE, A DROP OF "SHOT" OR OTHER PROJECTILE MAY FLY UP AND PIERCE THE EYE.

To become inflamed means to be caught in a blood flame. In inflammation, heat and redness, brought about by toxic or bacterial irritation or some such cause, are present and there is also a great inflow of blood to the part affected. Because of the excess of blood there is swelling and, in almost all instances, pain. In the case of inflammation of the optic nerve, optic neuritis, pain is wanting because the nerve cannot, in itself, experience what we feel as pain.

THE function of the optic nerve is sight; and when the nerve is inflamed, the vision suffers from varying degrees of decrease to total blindness, induced chiefly by the atrophy, or wasting, of the nerve fibers, which is caused by swelling and pressure.

Aside from the disturbed vision the inflammation is not noticeable externally. But when the inside of the eye is examined with the ophthalmoscope, the damage is plainly seen; there is a blurred redness and swelling of the disk, and there are great changes in the blood vessels. Later the nerve may show the pallor of atrophy. Both eyes are usually affected, and the course is chronic.

In most cases of optic neuritis the retina, which is a cuplike expansion made up of the fibers of the optic nerve, is also involved in the inflammation. There is then a neuroretinitis with haziness of the retina and changes in its blood vessels.

Foremost of the causes of optic neuritis are syphilis, acute and chronic general infections, great anemia, hemorrhage, lead poisoning, sinus infections and multiple sclerosis.

The treatment must be directed toward the elimination of the cause. Of first importance is the examination of the nasal sinuses.

A CHOKED disk is a condition of particular significance and one which doctors frequently discuss. In its pure form it is not an inflammatory condition. Examination with the ophthalmoscope shows that the nerve head, or disk, is pushed forward, swelled out beyond the level of the retina. It resembles the head of a mushroom. This swelling is the result of increased pressure inside the skull produced by a brain tumor or abscess or any other condition that pushes the brain fluids between the sheaths of the optic nerve and makes its head bulge. With choked disk there is usually headache, and at first but slight obscuration of sight that comes and goes; if the choked disk persists, atrophy may ensue, and the sight may be seriously damaged.

In the back of the eye, about 1 inch from the outer world, the brain has established an outpost and lookout so that it may see what the world is doing. This lookout is the optic nerve, which threads its way from the brain into the orbit and into the eye like the wick of a lamp. The point of entry is the nerve head, or disk, which when in a healthy state appears like a full, rosy harvest moon.

The optic nerve has a fine eagerness for light; it dips into every source of it, catches and toys with every ray that comes its way, makes of the eye a globe of light that blazons every color, the green of grass, the sheen and sparkle of stars—until something happens. What often happens is told by the following stories:

The woman's face was a study in shades of resigned sadness. As she told of her trouble, her soft lips made their speech in slow, singly uttered words. Although she was an innocent victim of the disease, her story was a confessional, chastened of bitterness, resigned to the embracing vista of darkness.

Her sight had been failing progressively for the last year or so, first in one eye and then in the other. Examination revealed that the pupil did not answer to light; the knee jerks were absent; the Wassermann reaction was positive, and the disk was no longer like a rosy harvest moon, instead it now had the appearance of a cold winter moon, a stark, uniformly bluish white.

Optic atrophy was the result of the old enemy, syphilis, and the woman knew it. There was not much that could be done at that stage despite energetic treatment. Once the sun had belonged to her, and all things that gave light and color were things of joy—once!

There came a giant of a man, a somber majesty on his face. Even as his wife had him by the arm, his footsteps were newly hesitant and slightly shuffling.

One morning three weeks previous, he awoke with the sight gone from both eyes. The eyes looked normal, and no trouble was discoverable inside them, except again the stark bluish whiteness of the disk.

On closer questioning it was discovered that he had taken part in a drinking spree the day before he went blind. The nerve wicks of his eyes had dipped into the wood alcohol that he had drunk and that had destroyed his sight.

His was another case of optic atrophy. Wood alcohol to the optic nerve is like water on a burning coal. In the worst cases there is no cure; there was no cure for this man.

A young man had his eyes blacked in a street fight one evening. The next morning the left eye was closed and badly swollen. On forcing the lids open and shutting the other eye, he discovered that the left eye was blinded.

The lids of both eyes and the surrounding skin were blue-black. The conjunctiva of the left eye was greatly swollen, uniformly red and sticking out in a fold between the eyelids. The cornea was clear and unharmed. The eyes inside looked normal. The left eye, however, was absolutely blind. What caused it? A vicious punch had torn the optic nerve across, back of the eyeball. There was no other explanation. Several weeks later this explanation was confirmed when the nerve head showed the classic appearance of atrophy. The external appearance of the eye returned to normal, but the eye remained blind.

OPTIC atrophy is also caused by some tumors of the brain and by old and repeated inflammation of the nerve. The occasional occurrence of partial atrophy in susceptible persons has been attributed to the long continued, joint influence of much use of tobacco in any form and alcohol. Recent medical opinion is to the effect that alcohol has not much to do with it, however.

Seeing, as every one knows, is a function of the brain. It is a well established fact that the imagination can heighten or temporarily suspend certain brain functions. In hysterical persons, mostly young women, it sometimes happens that one eye or both eyes go "blind"; such persons erect a screen of invisibility between themselves and the outside world. Sometimes such blindness is produced by some bodily injury or shock. No changes are found in the eye.

Such persons say that they are "blind" and that they cannot work, and so they are excused from helping about the house. They take their affliction without much distress. Still, if they think that they are unobserved, they find their way about, even in strange places, and avoid objects put in their path. The condition may last for some time. Suggestion, electrical treatments and medication finally help to break through this vice.

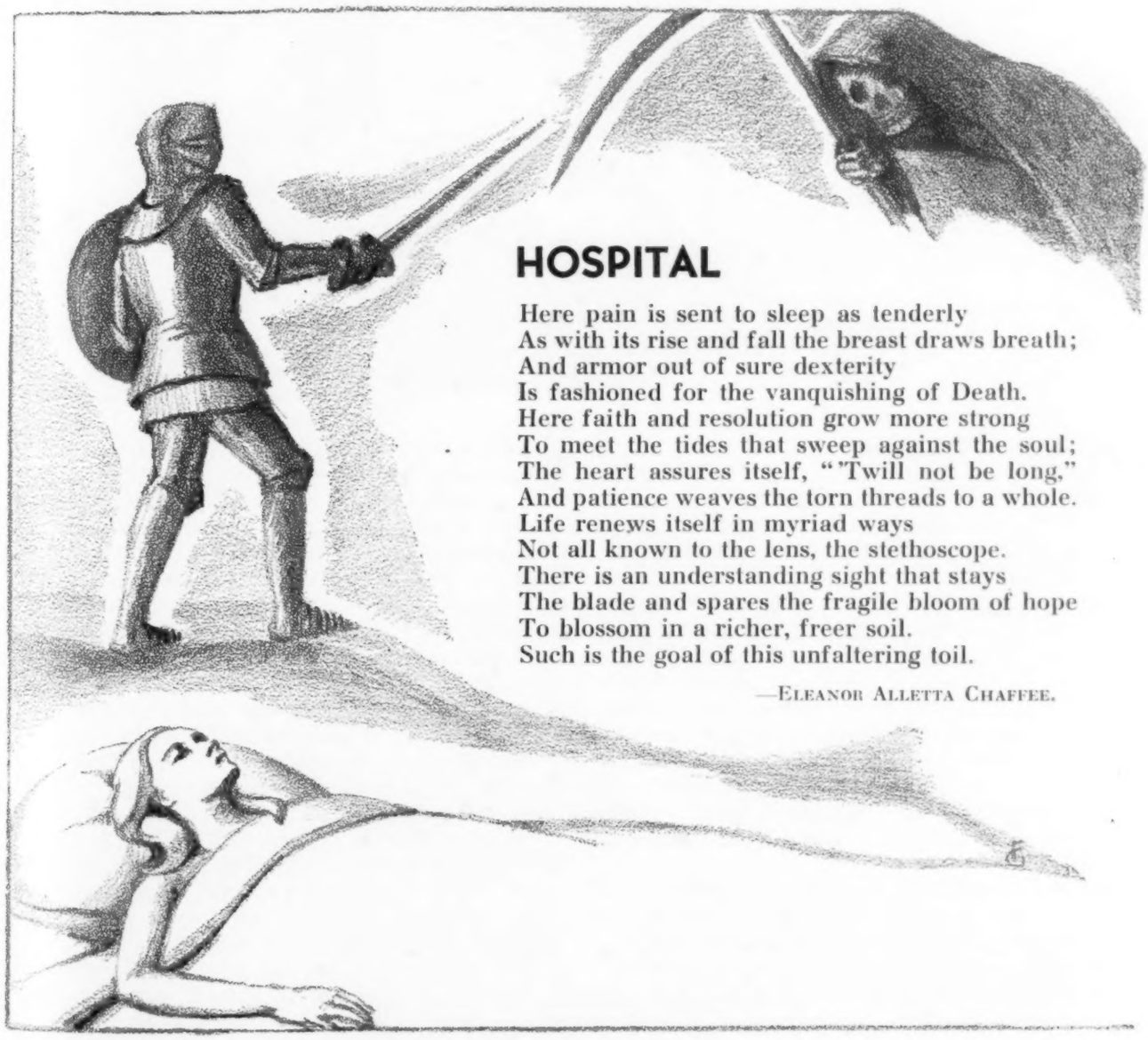
In the condition known as psychic blindness, objects, words, letters and persons are seen both by the eye and the brain but cannot be named. It happens momentarily to many normal persons through a fleeting break, a lapse, in the visual memory. In marked cases the break in the connecting fibers in the brain is more lasting and permanent.

The most common varieties of color blindness are green blindness and red blindness. In both instances there is an inability to name the respective colors on sight and to match them.

The congenital variety of color blindness is found in about 4 per cent of the population, mostly in men. It affects both eyes and is common in certain families. There is no disturbance in the general sight, but persons who are color blind are unable to recognize one or more of the colors, red, green or blue, as such. The color sense may, to some extent, be developed if training is begun early. Acquired color blindness is caused by diseases of the retina and the optic nerve that seriously impair vision.

Color blindness is a material drawback to the pursuit of certain occupations such as railroading and seafaring or any employment in which color signals are used.

[NOTE.—In the June issue, Dr. Cohen's topic will be "Eye Diseases in Advanced Age."]



HOSPITAL

Here pain is sent to sleep as tenderly
As with its rise and fall the breast draws breath;
And armor out of sure dexterity
Is fashioned for the vanquishing of Death.
Here faith and resolution grow more strong
To meet the tides that sweep against the soul;
The heart assures itself, "'Twill not be long,"
And patience weaves the torn threads to a whole.
Life renews itself in myriad ways
Not all known to the lens, the stethoscope.
There is an understanding sight that stays
The blade and spares the fragile bloom of hope
To blossom in a richer, freer soil.
Such is the goal of this unfaltering toil.

—ELEANOR ALLETTA CHAFFEE.

VOODOO LAND

By Elizabeth Blaine Jenkins

TI-MEME, THE BLACK WITCH WOMAN, SAT ON A CUSHION OF PALM FIBER, AND SHE WAS GAY WITH FEATHERS AND RIBBONS AND BEADS. ALL ABOUT HER SAT THE BLACK FOLK, AS THE DRUM MAN BEAT SLOWLY ON THE TALL, BRIGHT DRUMS.

VOODOO LAND is not located on any map; but if you should go to a certain island not far from our own country, you would find the place where voodoo magic is hidden away, deep in the hearts of black people. It is a beautiful land of springs and streams, high mountains and lush green valleys, tall silvery cane fields and whispering palm trees. It is so lovely and warm and golden with sunshine that it should be a marvelous place; and it would be if that dark, secret magic, called black magic, did not do so much harm. It is not magic as we know it when magicians take rabbits out of silk hats or juggle balls, just for fun. It is evil and ignorant and—but there! I shall tell the story of Bob and Barbara, and you will know all about it.

Bob and Barbara lived on this beautiful island set like a big green jewel in a warm southern sea. Their real home was in our own country, but Daddy wanted to write a book about the black folk, so there they were, living in a flat topped house with balconies on it, a walled garden around it and a wide patio just outside the garden doorway.

The patio was a wide, sunny room with the sky for a ceiling and gray stones for a carpet, and it was shaded by palm trees that whispered together in every wind that blew in from the sea. It was gay with flowers and was cooled by a fountain that bubbled out of a big shell, held in the arms of a marble mermaid. Bob and Barbara loved this outdoor room better than any room in the flat topped house, and every morning Nebo, the black boy, served their breakfast to them on a low table near the Spanish dagger palm. This was their favorite place for meals.

On a certain bright morning they had just seated themselves at the little breakfast table when Mother came out and said, "You must take some quinine pills because I saw some mosquitoes, and one of them looked like the little one, with a big name, that gives people malarial fever. You remember, I told you the story about the man who found out that the mosquito

called Anopheles carried fever germs from one person to another."

Mother put the quinine capsules at each plate; then with her pleasant mother-smile on her face, she hurried away for she was extremely busy. Bob swallowed his capsule at once and then took a big drink of water, but Barbara frowned and pushed her capsule away. "I don't believe one word of it. A mosquito hasn't a pocket or any place to hide a germ. And I haven't had a mosquito bite at all. I shall feed my capsule to the gold fish!" And that is just what she did at once. Then she laughed when the gold fish tried to gobble up the capsule.

"You are a naughty little girl, and I shall tell Mother," said Bob who was two years and two months older than Barbara and behaved very well. Barbara frowned harder than ever.

Just then Katy came in to remove the breakfast dishes. "Why, you have not taken a drop of your milk, Miss. Drink it up now while I clear the dishes away."

"There is a big black beetle in it, and I do not want to drink a beetle!" said Barbara, scowling hard at Katy.

"There couldn't be a beetle in your milk. I poured it myself and I surely would have seen a beetle," Katy replied.

"There is a beetle in it! It is black and has a red stripe down its back, and it spins like a motor boat when I poke it," said Barbara saucily.

"If you do not drink your milk like a good child, I shall be obliged to tell your mother, and she will punish you," Katy said sharply.

Katy took the dishes away, but Barbara did not drink her milk. There really was a beetle in it. She had caught it as it scurried across the patio and had dropped it into the milk herself, so of course she was right about it. It was climbing out now, and she watched it scurry away, leaving a tiny trail of milk on the patio stones.

Bob said, "Now you've spoiled our morning fun because Mother will come and tell you to go to your room until you can behave yourself."

Barbara peeped to see whether Katy was far away; then she whispered, "Come quickly before Mother comes. I have a beautiful idea in my head, and I can't stop to drink that old milk. It is too beetle-y now anyway."

She looked so full of her beautiful idea that Bob followed her as she skipped across the patio and ran out through the garden gate. She ran so fast that Bob did not catch up with her until she was far down the great avenue of trees that led to the sands of the beach. They ran fast until they left the little town behind them and began to climb the green slope that led up to the jungle where the black folk lived. When they stopped to get some breath, Bob sat down under a wide leaved banana plant and said, "Now, we're both naughty, and we shall be punished, so we might as well talk about your idea. I hope it is a good one."

Barbara stuck a banana leaf in her curls and began to say, "Boom! Boom! Boom! Boom! Boom!" Then she danced slowly and boomed again, just as Nebo, the little black boy, did when he told them about the voodoo drums. "Nebo told me that they are making voodoo magic and ouanga bags."

"What are Wanger bags?" said Bob with interest.

"They are little bags filled with snake bones and dried leaves and feathers and lots of queer things, and they cure all kinds of sickness. They help you to get what you wish for, and they bring evil to your enemies. I put some money in my shoe so that I can buy a ouanga charm from old Ti-Meme, the witch doctor."

"Is that all your idea?" replied Bob.

Barbara pointed up the slope to the dark green shadows of the jungle on the side of the mountain. Then she said, "Listen! You can hear the Rada drums. Boom! Boom! Boom!" The rest of my idea is to go up there to Nebo's hut and see them make black magic. Maybe they have a ouanga bag for malaria; then I shall not have to swallow quinine capsules every morning after breakfast!"

Bob did not believe in the power of charms or black magic, but the slow boom of the Rada drums sounded very interesting. At last he said, "Well, it's a long climb up to Nebo's hut, but we are halfway there now, so let's climb the other half. Ti-Meme will let us in, if we ask her politely."

So Bob and Barbara climbed up and up, and the drums sounded louder and louder as the children came near to Nebo's hut in the mountain jungle. The wild cane scratched their faces, and the little fan shaped palms tore their clothing. They splashed through a tiny mountain brook that danced down from the mountain heights and swirled over the stones before it jumped over a cliff to the town far below. The shadows grew deep, and Bob whispered fearfully, "Maybe we shall see the zombies, those men that Nebo says are dragged from their graves and made to work in the cane fields!"

Barbara whispered back to him, "Nebo says that zombies are not permitted to eat salt or meat because if they do, then they know that they are dead and go off to find their graves in the mountain."

"Maybe we shall see one at Ti-Meme's hut. She says they sit like people asleep, and yet their eyes are open. They have no souls like ours!"

Little thrills crept down their spines as they came to the clearing outside the little village of black folk. Now at last they would see a real voodoo dance and watch old Ti-Meme perform those strange cures that all the black folk talked about when they were alone in the moon-

BOB AND BARBARA LOVED THIS OUTDOOR ROOM BETTER THAN ANY ROOM IN THE HOUSE. HERE, EVERY MORNING, NEBO, THE BLACK BOY, SERVED THEIR BREAKFAST TO THEM ON A LOW TABLE BESIDE THE SPANISH DAGGER PALM. THIS WAS THEIR FAVORITE PLACE FOR MEALS.

lit shadows after dusk. Boom! Boom! Suddenly they came out right in front of Nebo's hut, and what a sight they saw!

The mud walled hut wore a thatch of straw and seemed to crouch like something alive, at the edge of a green field of cane. Ti-Meme, the Black Witch Woman, sat on a cushion of palm fiber, and she was gay with feathers and ribbons and beads. Her turban was red, and her face was black and wrinkled like a dried prune. All about her sat the black folk, while the Drum Man beat slowly on the three tall, brightly painted Rada drums. They were swaying and chanting and moaning, so that they might soon make witch magic. Nebo was there and Cele, the black cook, and the black men who worked in the cane fields. Bob walked straight up to Nebo and said, "Barbara brought money to buy a ouanga charm. She wants one that will keep away the fever."

Nebo whispered to old Ti-Meme, and she nodded slowly and took Barbara's coin in her black old hand. Then she told Bob and Barbara to sit down on the palm cushion beside her while she made the ouanga bag. It was all very solemn, and it made the roots of one's hair tingle.

Ti-Meme took roots and leaves and sprayed them with a liquid to keep evil spirits away. Then she marked them with chalk and sang a song to them:

Papa Legba ouvri barriere pour li!
Tout Mystere 'gider li!

It was a magic song, and the black folk nodded and wagged their heads because they believed that the song would help to make the ouanga bag a good magic maker. Then Ti-Meme put something into the mortar that did not smell very good and pounded it hard. She cut off a bright curl that grew on Barbara's forehead and tied it with red string. Then she put that in! After she had cut out a piece of Barbara's pink skirt, she made a little bag out of it, and tied up in the pink bag all the leaves and all the things she had mixed in the mortar.

And there was Barbara's ouanga bag, as neat as you please.

"Will it keep away the fever?" whispered Barbara to Nebo.

"It will bring you health and wealth, and your wishes will all come true," Nebo replied.

Bob frowned. He thought that the ouanga bag was an exceedingly silly thing, just a few leaves and bones that could not cure any sickness or make a single wish come true. But he did not say aloud what he was thinking, because the black folk were singing another chant to Ayida, one of their black gods. Bob felt afraid and whispered to Barbara that they had better go home at once. But Barbara did not want to go home. The black folk were bringing in a little girl on a cot, and Barbara wanted to see what kind of magic they would practice on the little black girl.

The little black girl was tossing about on the cot because she had fever. A mosquito had bitten her after it had bitten another little black girl who had the fever; so of course she had the fever too. Old Ti-Meme said that she could cure her, and this is what she did: She took a handful of leaves from the pigwood tree and tossed them into a kettle of boiling water. Then

she put a cake of yellow soap in the water and stirred and stirred it! What a mess it made, all bubbly and dirty! Then she took a dirty little pocket knife and cut little gashes all over the little black girl's head. The little girl moaned because it hurt to be cut like that. The next thing the old witch woman did was to pour the mess into a poultice bag and tie it on the little girl's head. The big poultice looked like a turban, and the mess got into the cuts, and how that little girl squealed! Any one would squeal with that turban on a cut head.

Bob and Barbara were quite afraid, inside, but they tried to look brave outside. But when all the black folk started to dance the weird, wild dance they called the Danse Congo, in which they wiggled and shouted and sang while the drums sounded their booming, Bob whispered to Barbara, "Let's slip out through the cane brake. They might decide to put little slits on your head and tie that messy turban on you, in order to keep away the fever germs."

Before they could run away through the cane brake, Nebo pulled Barbara out among the dancing black folk and cried out, "You must dance the Congo, or your ouanga bag will not keep off the fever."

Then while the black folk pushed her about and shrieked and sang and tried to make her dance, old Ti-Meme said again and again, "I will put the magic leaves on her head! That will cure fever."

Because Bob was two years older, he knew that there was danger when the black folk began to dance the Congo, since they always grew excited and did foolish things. He was afraid that they would put the turban on Barbara's head. Ti-Meme was already boiling the soap and leaves together, so he thought harder than he had ever thought in all his life, trying to think of a way to get away. Then all at once he thought of a good way. He shouted loudly and roughly shook old Ti-Meme's shoulder. "Barbara lost the ouanga bag! You must find the ouanga bag before you make magic on her head! Ayida, the black god, said so!"

They all began to shout, "Find the ouanga bag! Ayida, the great god, has said to the little boy, 'Find the ouanga bag!'" They got down on the ground on all fours and looked and looked, but they did not find the ouanga bag because Bob had put it in his own pocket. While they were all looking hard, they were not watching either Barbara or Bob, so Bob pulled Barbara hastily into the shadows of the cane field, and they ran faster than they had ever run in all their lives. Back they ran through the cane brake, through the thicket of prickly palm trees, through the fern bordered brook. The bushes tore their clothes. The rocks hurt their feet. Barbara fell and hurt her knee. But they ran on and on. They did not stop to get a breath until they were halfway down the slope, and the booming of the Rada drums sounded far away.

Barbara cried a little when she sat down because she was frightened and tired and out of breath. Bob was out of breath too, but he managed to say, "Well, I don't think your idea was good at all. It's a wonder they didn't cut your head and make bloody crosses on you the way they made them on the little black girl."

Just then the Rada drums sounded louder, and they both jumped up and ran again. This time they did not stop until they ran into the garden and through the gate of the patio. And there sat Mother and Daddy, writing their book about the black folk. Barbara gasped for breath; then she said, "It was my idea, and it wasn't a good one, but they didn't put the turban on my head, and Bob pulled me away, and the ouanga bag . . ."

"What ever are you talking about, and where have you been?" Daddy asked sternly.

After Bob took a few breaths he told them exactly what had happened. He began at the very beginning and did not leave out a single thing. When he had finished, Mother was holding Barbara tightly, and Barbara was saying, "I'll take my quinine pills every morning, Mother, and I'll never, never buy a ouanga bag again! But I think I'll keep this one just to remind me not to run away to watch the black folk make magic."

Bob gave the ouanga bag to Barbara and said, "You may have it because it does not smell very good; and I'll have to put on a new suit because the snake bones spilled into my pocket!"

Barbara had to put on another dress because hers was torn and a big square was cut out of it where Ti-Meme had taken a piece for the bag.

Mother and Daddy did not scold them, but that evening Daddy told them many things about the poor black folk who still believed in using silly magic charms to cure sickness instead of going to a real doctor to be treated by a man who had studied medicine. He told them that people long, long ago made charms to cure illness because they had not yet learned what we know today.

"I'm glad we know about quinine because it is easier to take a capsule than it is to have a turban sewed on your head," said Barbara.

Daddy agreed with her and added, "Especially when the turban makes their heads very sore, and often they get poisoned by the pigwood leaves."

Barbara and Bob were glad to be back at home, far from the wild throb of the Rada drums. They drank a glass of cool milk and ate their sandwiches under the palms in the patio. And this time Barbara did not put a beetle in her milk. She drank it slowly and carefully, as Daddy told her to do, and she took her quinine pill without a word. And neither Bob nor Barbara had the fever.

New Books on Health

AMERICAN MEDICINE

By Henry E. Sigerist. Cloth. Price, $4. Pp. 316. New York: W. W. Norton & Co., Inc., 1934.

IN THIS volume Dr. Sigerist presents a rather general consideration of the progress of American medicine from the days of Rush, Drake and Beaumont through the intermediate period down to John Shaw Billings and Sir William Osler.

The stimulus for the development of such a work came from Dr. William H. Welch. The material for the study was assembled largely from the library and thereafter from a lecture tour which covered a large part of the country.

Today Dr. Sigerist is a member of the faculty of the Johns Hopkins University Medical School, and as he lives longer among us he will, no doubt, change many points of view which he now holds in relation to the American medical scheme.

In the present volume he seems to be on sound territory until he reaches fairly modern times. Thus one can find but little to criticize in the first four chapters of his book. However, when he turns his attention to the history of medical education, he betrays at once the strong eastern influence under which he has been continuously in his study of American medicine. One searches almost in vain in this chapter for any mention of the Council on Medical Education and Hospitals of the American Medical Association. One sees instead almost the entire credit for the reform in medical education conferred on the Flexner report. Even a casual search of the available literature on the subject would have indicated to Dr. Sigerist the significance of what the Council has done in this field.

Dr. Sigerist next traces the development of group practice in the United States, emphasizing particularly the growth of the Mayo Clinic and leading eventually to the recommendation of compulsory health insurance for all the people. In connection with this discussion, Dr. Sigerist presents his considerations of the American Medical Association. He feels that the opinion of the Association must have great weight in controlling the changes that are to come in the nature of medical practice but that it cannot stop such changes since they naturally follow by the laws of social development.

Subsequent chapters deal with hospitals and nursing, the rise of preventive medicine, and America's contribution to medical science. The book culminates with the development of the Institute for the History of Medicine at Johns Hopkins University. A bibliography gives references to the works which the author himself has consulted in the preparation of this book.

MORRIS FISHBEIN, M.D.

LIMBS FOR THE LIMBLESS

By John Culbert Faries. Cloth. Price, $2. Pp. 104. New York: Institute for the Crippled and Disabled, 1935.

THIS IS an interesting handbook for the layman and the surgeon on the subject of artificial limbs. The author is well qualified to handle this subject, and there is an introduction by Dr. Fred H. Albee, chairman of the New Jersey State Rehabilitation Commission.

The object of the author is to give the layman certain facts regarding the history, construction and use of artificial limbs which should be helpful to those who need them, or to those who are called on to advise patients in that regard.

He desires to call to the surgeon's attention the advantages and disadvantages, from the standpoint of the limb maker, of the different types of amputation stumps. The book is of value because it is written from a noncommercial standpoint. The author, who has a Ph.D. degree, was former director of the Institute for the Crippled and Disabled and instructor in orthopedic surgery in the Postgraduate Medical School at Columbia University.

The book is presented from the point of view of the artificial limb maker and does not take up operative technic.

The economic, physical and psychic effects of amputation are discussed. The author holds the surgeon largely responsible for the usefulness of the stump and the limb maker for the proper function of the substitute. When limb maker and surgeon work together, the result is generally the restoration of function to such a degree that the wearer is restored nearly, if not wholly, to normal efficiency.

A brief historical discussion of the development of artificial limbs is given with illustrations. A description of the technic of making artificial limbs is exceedingly well written.

The sixth chapter contains practical hints for the limbless, including care of the stump, care of the artificial limb and choice of limb and stump sock. There are two illustrations of the sites of election for amputation, from the standpoint of the artificial limb, which were taken from the U. S. War Department Manual.

There is a short chapter on kinetic stumps and another on provisional prosthesis, the preliminary making and adjusting of artificial limbs.

PHILIP LEWIN, M.D.

[NOTE.—Books reviewed or mentioned on this page, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

SCHOOL AND HEALTH

A Department Conducted by J. MACE ANDRESS, Ph.D.

67 Clyde Street, Newtonville, Mass.

Studying the Pupils' Health

THE FIFTH ARTICLE IN A SERIES ON THE CLASSROOM TEACHER AT WORK

MISS WELLS was the new principal at the Oak Hill school. A few weeks after the beginning of the year as she was walking down the hall during recess time, she saw Miss Barton, one of the fifth grade teachers, surrounded by a number of pupils, standing near her desk in the classroom. They were evidently examining an exhibit. When Miss Barton saw Miss Wells she stepped quickly to the door and said cordially, "Good morning, Miss Wells. Do come in and see our health exhibit. The children have made some wonderful health posters."

Although Miss Wells was in a hurry she could not resist such an invitation from an enthusiastic member of her staff. She went in, and they made the round of the room together.

"This is a beautiful poster," said Miss Wells, pausing before one which pictured a girl with a smiling face and lovely teeth. Underneath were the words: "I clean my teeth after meals and before going to bed. I go to the dentist's at least once every year."

The teacher smiled as she glanced approvingly at a tall boy who stood near her.

"That is John's work," she remarked.

"My congratulations to you on such fine work," said the principal. "I suppose you are careful about brushing your own teeth."

John hesitated and played with the ruler in his hand.

"Just how long has it been since you went to see the dentist?" asked Miss Wells kindly.

"It was so long ago that I do not seem to remember," he replied.

"Suppose we have a look at your teeth," she said as she drew him toward the window.

"Now, John, open your mouth wide."

After a rapid inspection, she asked Miss Barton to look at John's teeth also. "What do you see?" she asked.

"Why, John," said his teacher. "I had no idea that your teeth were in such bad condition. They look as if you had not used your toothbrush very carefully, and a number of your teeth seem to be badly decayed. You need to see the dentist immediately to have your teeth filled and well cleaned by him."

"I'll tell father about it this very night," said John. "Perhaps I can get an appointment with a dentist for tomorrow."

The children had all left, and Miss Wells and Miss Barton were alone.

"I thought that this poster work would be so interesting that the children would naturally practice their hygiene, but I see that every child needs to be followed up. Before the week is over I shall know about the condition of the teeth of every child in my room. And before the term is over, I shall make every effort to see that my pupils have their teeth in perfect condition before they start the summer vacation. It never occurred to me before that children might be very much interested in making health posters and reciting in class and not particularly concerned in practicing health."

"That's a great discovery," remarked Miss Wells. "After all, as I said in our teachers' meeting, our goal in our health program is healthy children."

Miss Barton's eyes sparkled as she replied, "I think I should like to help the doctor when he examines my pupils next week. I should also like to invite the parents to be present. In that way we not only can find out significant information about each child's health but can plan for the correction of defects by means of a health educational program."

"It has been an inspiration to visit your room, Miss Barton," said Miss Wells. "If all our teachers can grasp such a vision of our health work for the coming year, we shall be able to show substantial progress."

Health Teaching in May

THE END of the school year is now in sight, and teachers are beginning to count the remaining number of school days. The summer vacation days, when boys and girls leave their books behind them and forget their classroom duties, are approaching. What will the boys and girls do during these many weeks? Will they return to school in the fall in better physical and mental condition than when they departed? What can the school do to make certain that their educational development will continue during this long break in school life?

These are perplexing problems. Some educators have said openly that it would be much better if the children could continue at school instead of dissipating their energies in surroundings that often invite delinquency and the cultivation of unwholesome interests. Camps and vacation schools have done much for children during the summer months, but unfortunately only a small proportion of the school population can attend these. Those who can find worthwhile jobs will be fortunate. In this period of economic depression little relief which involves the additional spending of money can be expected. The school through its regular resources and machinery must face the situation.

The problem is that of stimulating leisure activities during the summer. It is a part of the greater life problem of education for leisure, which is now commanding so much attention. It challenges you, as a teacher, to help all boys and girls who are old enough to receive practical suggestions to cultivate some interesting, wholesome and healthful hobby during the summer.

Some of our schools are alive to the need and opportunity. They are issuing bulletins for teachers and sending letters to parents, asking them to cooperate during the summer. Exhibits are being planned in the fall for the summer work which children will do.

School 233 in Baltimore, Md., has a bulletin of suggestions on vacation plans for children of the fourth, fifth and sixth grades. Here are a few of the suggestions chosen at random which might well be adopted or adapted for the use of other children:

Make observations and records of the Big Dipper every week.

Design and construct a small steam engine.

Prepare a small model to represent the water supply of the town.

Construct or find pictures of all kinds of transportation.

Make a simple telescope.

Study one of the harmful plant insects, such as the Japanese beetle.

Make a fountain for the birds.

Sketch various kinds of trees.

Classroom teachers may discuss with their pupils during this month the possibilities of choosing attractive vacation projects. Also there is no reason why much of the regular school work during the next school year should not lead to such goals.

For practical suggestions, teachers may like to consult Eugene Theodore Lies' book "The New Leisure Challenges The Schools," which is published by the National Education Association of America, Washington, D. C.; the publications of the Leisure League of America, 30 Rockefeller Plaza, N. Y., and *Leisure*, The Magazine of a Thousand Diversions, Boston. *Understanding The Child*, 3 Joy St., Boston, will devote its next issue to "Work, Play and Leisure."

❖ SOLVING HEALTH EDUCATIONAL PROBLEMS ❖

HEALTH WITHOUT WEALTH

BERTHA STREETER
ROYAL OAK, MICH.

One of the greatest discoveries in health education is the ability to do a certain amount of necessary health work regardless of conditions and without an increased expenditure of money. Miss Bertha Streeter, a professional writer who has contributed to our columns several times before, tells us about health education achievements of this kind in Detroit schools.

AT THE beginning of the school year last September, it was evident to the teachers in a number of schools in Detroit that the morale of the children was quite low. Classroom response was poor, initiative was lacking and there was a general listlessness and emotional instability. Possible causes were discussed at teachers' meetings, and varying conclusions were reached in different schools. The most general impressions were that the children were suffering from malnutrition, possibly through poor parental judgment in the selection of food on limited means, or possibly through the lack of regular family habits as a result of unemployment, and that family independence had waned through continued help from sources outside the home.

It was evident that most of the families represented in some schools needed a decided bolstering of morale, a feeling that even under difficult conditions there were some things they could do to help themselves. But the children, and in many cases their parents, too, felt that the teachers did not fully appreciate the existing social and economic conditions, and they were reluctant to discuss their problems at school.

One principal and her teachers, instead of asking the mothers to come to the school, met the situation by visiting the homes of some of the children having physical defects. In this way the teachers gained a better understanding of the children's attitude, which is formed chiefly by home environment. Then a committee of teachers was appointed to develop a school health program to meet the needs of the pupils and to influence them and their parents to adopt habits that would lead to happier and more efficient attitudes. So was evolved an outline for a program known as "Health without Wealth."

The chief need seemed to be to make the children realize that some health habits are necessary if vigor and the feeling of well being are to be maintained in everyday life. At the same time the teachers realized that children can appreciate only those hygienic facts which can be applied in everyday living; no child is interested in health as an end in itself. So they aimed to establish the daily practice of those habits which promote health, and they hoped to impress the children with them in such a manner that they would take pleasure in performing them. Only a brief outline of the undertaking is described here.

A survey was made of each class to determine the number of pupils who habitually cleaned their teeth and finger nails, washed themselves, combed their hair and carried clean handkerchiefs. When the children saw the result of the survey they decided there was great need for improvement. They eagerly discussed ways and means of improving one's personal appearance, made a list of desirable health habits and then decided on a chart that they would check daily. After this inspection there were daily discussions on such health matters as the need indicated; for example, the proper disposal of paper napkins used as handkerchiefs and the importance of covering the mouth when sneezing.

GETTING PLENTY OF SLEEP EVERY NIGHT IS A FINE HEALTH HABIT FOR CHILDREN.

So morning inspection became a natural outgrowth of the child's need of recognition for achievement. The spirit was that of rejoicing over cleanliness rather than of searching for dirt, for the whole project was based on the fact that one who knows he looks his best on starting the day is best prepared in every way for meeting all it holds.

Since many children had few or no facilities at home for making themselves look their best, each

assembly room was provided with a mirror, toothpicks for cleaning finger nails, paper napkins to serve as handkerchiefs when needed, paper towels and soap for emergencies. Each pupil kept his comb in his desk, and a fund raised by the teachers afforded combs for those who otherwise would not have had any. But most important of all, suitable periods were provided in the school schedule for the use of such supplies if they were needed. A few minutes were allowed in the morning before inspection and after recess; hand washing before lunch, too, became a regular part of the school program, and freedom was granted for washing hands at any time they became soiled.

The first chart was kept for four weeks, when it was found that few pupils had perfect records; in one class there were only three. The children wanted to try again, and the requirements were rearranged so that they might better meet the needs which the first chart revealed. The second chart was kept for four weeks, and that check showed twenty-two instead of three with perfect records. Later, those with perfect records in each room were enrolled, with suitable ceremony, into the Health Guard club. They were duly impressed with the responsibility not only for their own health but, like the life guard on the beach, for the health of the entire student body. Of course, every one wanted to be a health guard, so every one who did not have a perfect record took home an individual chart to be checked each day. This was brought back at the end of the week, signed by the parents; and if it was satisfactory a star was properly placed on it. Pupils who had four stars at the end of four weeks were enrolled in the club.

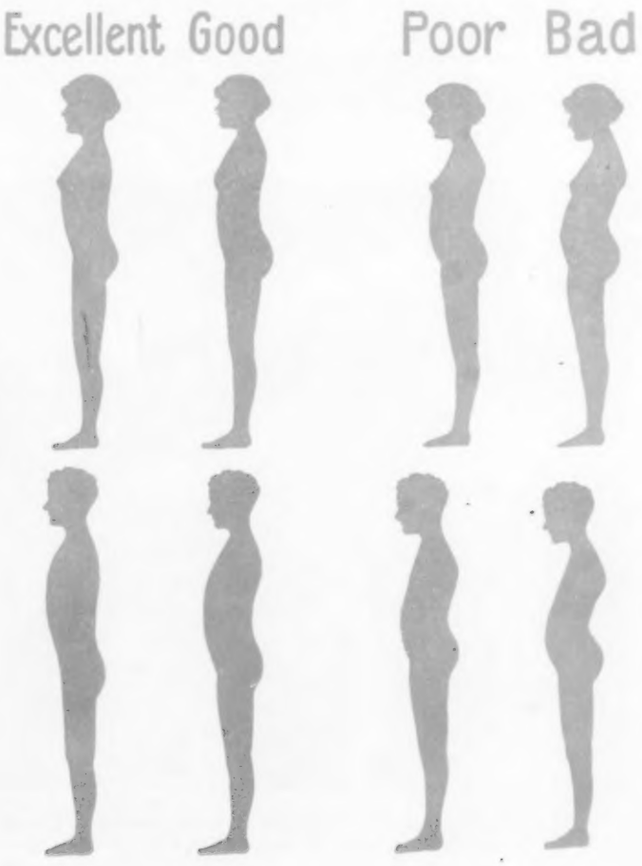
Each chart bore the following instructions:

"Keep a record of your health habits for a number of weeks until you are sure you have really made the good practice a habit, then the habits will take care of themselves. For instance, you will not have to be reminded of washing your hands before eating because you do it without thinking about it.

"If your weight is one or two pounds above or below the weight indicated on the table for a boy or girl of your height, you need not trouble yourself about weight. But if your weight varies more than that, you should try, with the aid of your parents or teacher, to find the cause and set out to apply the remedy. You may not be eating enough nourishing food; perhaps not drinking enough water; possibly not sleeping long enough each night, or getting enough exercise in the fresh air and sunshine. Look through the health habits listed, and see which ones you may practice to bring up your weight. Your teachers and parents will help you decide."

The Keep Well club was formed by the boys and girls who were trying to keep the health rules. Members could remind other members of their health habits if they appeared to forget; they could try to get careless children to be more careful about their health habits, and they kept a list of the honor members, who were allowed to score the list each month. Occasionally they gave a program on Friday afternoons at which the honor members were the stars. The whole organization endorsed the habits that promote healthy personality, such as cheerfulness, persistence, self control, self dependence, thoughtfulness, kindness and good sportsmanship.

The results of this part of the program were very encouraging in higher morale for both parents and children. With greater cleanliness and a more hygienic method of washing the hands, under running water, the spread of skin diseases and eruptions was checked. The use of handkerchiefs in sneezing helped in the prevention of colds. Any child who had a cold or other illness and who stayed at home in bed and drank plenty of water until symptoms of the cold or other illness were gone was highly commended before his class on his return and before the Keep Well club at its next meeting. This procedure gave many parents quite a different conception of the danger of this common illness, its proper treatment and the safeguarding of others from its contagion. Parents sent their children to school in cleaner, neater clothing, and when the parents visited the school they also appeared cleaner and neater than in more prosperous times. They were in a happier frame of mind than at the beginning of the school year.



POSTERS CHECKING ALL POINTS OF CORRECT POSTURE AND PICTURING BOTH GOOD AND BAD POSTURE WERE INSTRUMENTAL IN MAKING THE GOOD POSTURE PROGRAM A SUCCESS.

PUSHING POSTURE

FAYE NIXON
GOSHEN, IND.

Making good posture popular is one of the most difficult health problems of the school. Miss Nixon, who helped to make a posture campaign intriguing, offers a report based on a conversation of boys and girls.

THE HIGH SCHOOL health council was talking over the year's activities. After discussing the health article and poster contest, the first aid work, the seal sale campaign and the personal help reports, the group agreed that the most outstanding project for the whole year was the posture campaign.

"Was it good enough to write up for HYGEIA?" asked the president of the club.

"What are the lasting results and what were the most effective factors?" questioned the nurse.

"Well," answered the outspoken member, "I for one think more often of my posture, and I notice the posture of every one else just as I might see a smudge on your face or notice that you had on an untidy dress."

"Yes," added Joe, "and I know the students are still talking about their grades. I heard John tell Max that his name may have been on the honorable mention roll once but that if he didn't hold up his head, his name would be taken off in a hurry."

"At least they learned how to grade their own posture," continued Helen. "The mirrors in the halls and the posters checking all the points of correct posture made a big impression. If a girl stopped to powder her nose, another pupil would read the little sign, "For Posture, Not For Primp," and then they would both straighten up and talk about posture. I think the funny little rhymes which the art classes illustrated for us helped a lot because every one went about repeating them."

"We certainly had to walk straight, stand straight and sit straight that whole week," confessed a tall senior. "Every one knew that the health classes and the council girls were grading the students, and we didn't dare slump. It was a lot of fun, too. One of the teachers told me that she tried to watch her posture when I was in her class. I didn't have her name at all, but I didn't tell her so. I thought it was good for her to hold up her shoulders, because she usually humps over dreadfully."

"It was also a good idea to have several pupils grade each teacher. It didn't seem so personal then."

"Yes, and wasn't there a lot of excitement when the grades were posted in the study halls? Did you post the teachers' grades in the restroom, Miss Nixon?"

"Yes, Ruth, but nearly all of them came in for their grades before I got them posted. How many themes were handed in on posture that week, Ruby?"

"Oh, lots of them, and the one that we printed in the school paper was a peach. It may get the grand prize. We had a great write-up, too, about the campaign, as well as follow-up material. Josephine makes a good reporter for the health department, and we owe her a vote of thanks."

"All right, girls. I liked to do it, but we almost forgot the assembly program we gave the first of the week. The shadow pictures given by the Girls' Athletic Association were well done, but the hit of the whole thing was that little play given by the boys' health class. The boys wrote it themselves, you know; and wasn't it clever the way they brought out the idea that a fellow could lose his pep, his place in the class play and have a less attractive personality if he had poor posture?"

"It was funny, too, especially where Jack decided to reform. He had just said, 'If I don't stand up after this, give me a good swift kick,' and then started walking away all slumped over. When Max really kicked him, I thought I'd pop laughing."

"Well," agreed the nurse, "the verdict seems to be that the whole campaign was quite worth while, and perhaps another school can get some helpful ideas so I'll write it up, and then I'll send it to Dr. Andress."

"I hope he prints it," said the treasurer. "You know our apple profits were not very big this year, and we need the money for our prizes."

And because the nurse was very busy, she simply transcribed from memory the foregoing conversation, and here it is.

To Contributors: — The editor of the School and Health Department will be pleased to receive articles dealing with the solution of concrete and practical health education problems in the school. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of HYGEIA, *67 Clyde Street, Newtonville, Mass.*

A CONVINCING EXPERIMENT

EDITH M. CULTER
FULLERTON, CALIF.

A California school selects a group of its undernourished children from homes where milk is not provided. Each child is given a pint a day. Read about the results.

THE VALENCIA Drive School of Fullerton, Calif., conducted an interesting health experiment extending over a period of five months during 1933 and 1934. The American Legion Auxiliary contributed money to buy milk for needy children. Eleven undernourished children, all from homes where milk was not provided for them, were selected from the first to fifth grades. At the 10 o'clock recess, every school day, each child was given a half pint of milk. No other food was given them at this time. The children followed the regular school program of study and play. No favors or excuses were granted, and no rest periods were given.

Pictures were taken of the children at the beginning and close of the period. The noticeable changes in the expression of the faces, the well rounded arms and legs, and the quality of hair are all evident in the pictures while the change in disposition and grades were the improvements that brought an added joy to the hearts of their teachers.

During the free study periods these children exhibited a greater power of concentration, spending the most of their time in absorbed reading, while the others were drawing or engaged in some useless activity. The scholarship was

BEGINNING IN NOVEMBER. ELEVEN UNDERNOURISHED CHILDREN WERE GIVEN HALF A PINT OF MILK EVERY DAY DURING RECESS.

noticeably higher, and they were all able to complete their work in the given time, if not a little in advance of the others and were then ready for some activity which they enjoyed. Thus, all except one brought up their grades to passing and above passing marks. Their general disposition on the school ground was much better; all became better and happier citizens.

They did not have the extra milk on Saturday or Sunday or during the vacation periods, which consisted of one week at Thanksgiving, an unusually long holiday at this time because of an epidemic in the other schools in the city, two weeks at Christmas and one at Easter.

The group had a total of nine days' absence out of a possible ninety day school term, making an average of over eight-tenths day's absence for each child. The average age, Nov. 13, 1933, was 8½ years, the range in age being from 6 to 12 years. The average weight was 55½ pounds and the average height 50 inches. At the close of the period, April 12, 1934, the average weight was 60½ pounds and the average height a little more than 51 inches, an average gain of 5 pounds in weight and 1 inch in growth.

These results have been so convincing that plans are being made for a more extensive health program next year for the children of Fullerton.

THE SAME GROUP, IN APRIL, FIVE MONTHS LATER, LOOKED HAPPIER AND HEALTHIER.

COMBINING HEALTH HABITS WITH THE NEW CURRICULUM

ANNE KING RATCLIFFE
FALMOUTH, VA.

It requires ingenuity to get health habits established. Miss Ratcliffe suggests a novel way in which habit forming may be introduced into a unit on Japan.

DURING THE past several years much emphasis has been placed on the problem of revising the curriculum and replacing the old one with a new course of study which gives more emphasis to pupil activity and less to teacher activity. The school in which I taught is located at Sealston, Va., and the unit which I shall explain was worked out in the primary grades.

Instead of forcing the pupils to observe health habits, I let them engage in various units of work in which there was a great deal of pupil activity. The unit on Japan gave the pupils a wonderful incentive for carrying on their health work. In working out this unit, cleanliness as well as other habits of the Japanese was studied. The cleanliness of people of this nationality is just as evident as any other aspect of their everyday lives. The pupils were interested to learn that every Japanese, regardless of his station in life, takes a hot bath every day. This information and stories about Japan furnished an incentive for the pupils to pretend that they were Japanese children. Since the pupils were interested in Japanese writing, each one made a booklet in which he printed Japanese characters and drew pictures to represent the people who were being studied. Near the back of each booklet was a blank space for recording the results of each morning health inspection. This plan proved very satisfactory. Each pupil wished to make a good record because the booklets were to be exhibited at the Japanese program. In connection with this program the language class wrote and produced an original play which emphasized the importance and helpfulness of the health habits. Habits such as eating the right kinds of food, practicing cleanliness of home and person and taking physical exercises were illustrated by simple games and folk dances. Politeness, another important habit, was worked into the play.

This plan of pupil activity may be used advantageously in all types of elementary schools. It is indeed a blessing to shy and sensitive pupils who resent criticism.

NEW HEALTH BOOKS FOR TEACHERS AND PUPILS

EYE HEALTH STUDY OF TEXAS SCHOOL CHILDREN

By J. Guy Jones, F. M. Hemphill and Jeanie M. Pinckney. Pp. 8. Austin, Texas: Bureau of Nutrition and Health Education of the University of Texas, Extension Division.

EVERY day our health program tends to move steadily toward a procedure based on facts. If health educators are put in possession of facts regarding the health needs of children we shall not be disappointed about their acceptance of responsibilities.

This eye health study in Texas was an admirable piece of work. It included 5,748 white school children from the first to eleventh grades who were taken from four widely separated school systems. The study involved eye tests, a survey of classroom lighting, a summary of observations and recommendations and finally a presentation of principles of instruction in eye health.

It is impossible to review the significant observations in detail in this brief review, but here are some of the most important statements as to what was found:

Of the 5,748 children, 23 per cent were selected for the eye physician's examination because they showed signs of some abnormal eye condition; 33 per cent of the 5,748 children were sitting in schoolroom areas equipped with subminimal light intensities; 12 per cent were unable to read the standard vision line. Eye defects increase with grade level, but it is believed that in high school, pupils with abnormal eye conditions are

(Continued on page 470)

QUESTIONS AND ANSWERS

Soy Bean Milk

To the Editor:—Please tell me how to make soy bean milk or acidophilous soy bean milk. Lately, scientists have claimed that soy milk will not cause disturbances in the stomach and intestinal tracts as ordinary milks do in some cases.

E. W., Oregon.

Answer.—The question about soy bean milk has been referred to the American Medical Association Committee on Foods, and their reply follows:

"According to Dr. A. A. Horvath, formerly of the Peking Union Medical College, soy bean milk is prepared as follows:

'Every kind of soy bean can be used for this purpose, but those which are preferable have a light yellow color, are of small equal size, are well dried, have a bright lustre but are poor in fibrous tissue. These kinds of beans are generally rich in protein and have a large proportion of other valuable nutritive components.

'The general method of soy bean milk manufacture used in the Orient is the following: the beans are washed until they are free from any mixture and then soaked in water. The length of time to have the beans in water is not fixed but depends upon the temperature. In the summer one night (about 10 hours) may be quite enough, while in winter it takes sometimes 24 hours before the beans fully absorb the water. If it is very cold, warm water should be used for this purpose. In summer time the water has to be changed once or twice.

'When the beans are well softened they are crushed by means of a stone-mill. The dense milky liquid, dropping down from the mill, is received in a vessel underneath. Generally, a perforated cup of water is suspended over the mill, allowing drops of water to trickle through to hasten the crushing. Care should be taken to have the water in proper proportion, because if too much water is dropped, the beans are not well crushed. After the crushing is done, two or three times the volume in water is added to the dense milky liquid and the whole kept standing for a while. Finally, the whole is placed in a covered kettle and put on a slow fire until the mass has simmered well. Care should be taken not to let it burn.

'When the milky mass is boiling, it foams easily. A few drops of shell-ash mixed with some seed oil is added to the boiling bean mass in order to stop any overflow. The contents of the kettle have to be stirred from time to time and boiled for about half an hour. When the mass is fully boiled, it is removed into a filter bag made of cotton (sometimes of silk), which is hung on two bars fixed parallel over a vessel. The refuse is separated from the white and thick liquid, which looks like ordinary milk and is called bean milk.'

"The same writer in the News Edition of *Industrial and Engineering Chemistry,* states:

'Soy bean milk has been extensively used throughout the Orient since its discovery by the Chinese philosopher Whai Nain Tze long before the Christian era. This milk does not coagulate on boiling, but acids and rennet produce a curd-like precipitate. According to Fisher, soy bean milk gives a much finer flocculent precipitate in the stomach than cow's milk. Its period of stay in the stomach is shorter. Its ingestion results in a feebler secretion of gastric juice; the period of secretion is also shorter. The peristaltic motion of the stomach is less after the ingestion of soy bean milk and more coordinated than in the case of cow's milk.

'If soy bean milk is boiled with a solution containing magnesium chloride or calcium sulphate its proteins are precipitated. The cheese-like product obtained by pressing this precipitate is generally known as bean curd and is called in China, tofu. If fresh, it contains approximately 8 per cent of protein and 3 per cent of fat, and is digested, according to Oshima, to an extent of over 95 per cent. Fried tofu resembles beef in its content of protein and fat, and is called in China, the meat without the bones. In the Orient tofu forms a very popular and almost indispensable dietary article.'

"A list of accepted special products for infant feeding, which includes a list of the powdered milks, will be sent on receipt of 6 cents in stamps."

Goiter

To the Editor:—Can you tell me whether a thirty day fast is possible and whether it will cure goiter? Is it wise to follow such a procedure? Would it be safe for the patient to fast if he also has syphilis and is taking treatment for it? Can a goiter cause a tension at the pit of the stomach when air is breathed in and also when air is expelled?

J. B., Illinois.

Answer.—A thirty day fast is possible, but it is not likely to cure a goiter. It is a most unwise procedure.

A patient who suffers with a goiter and also has syphilis should certainly not experiment with fasting and other methods dear to the faddists. He should put himself under the care of a physician, take the physician's advice and ask all his questions of his physician, paying no attention whatever to advice from anybody else.

Retinitis Pigmentosa

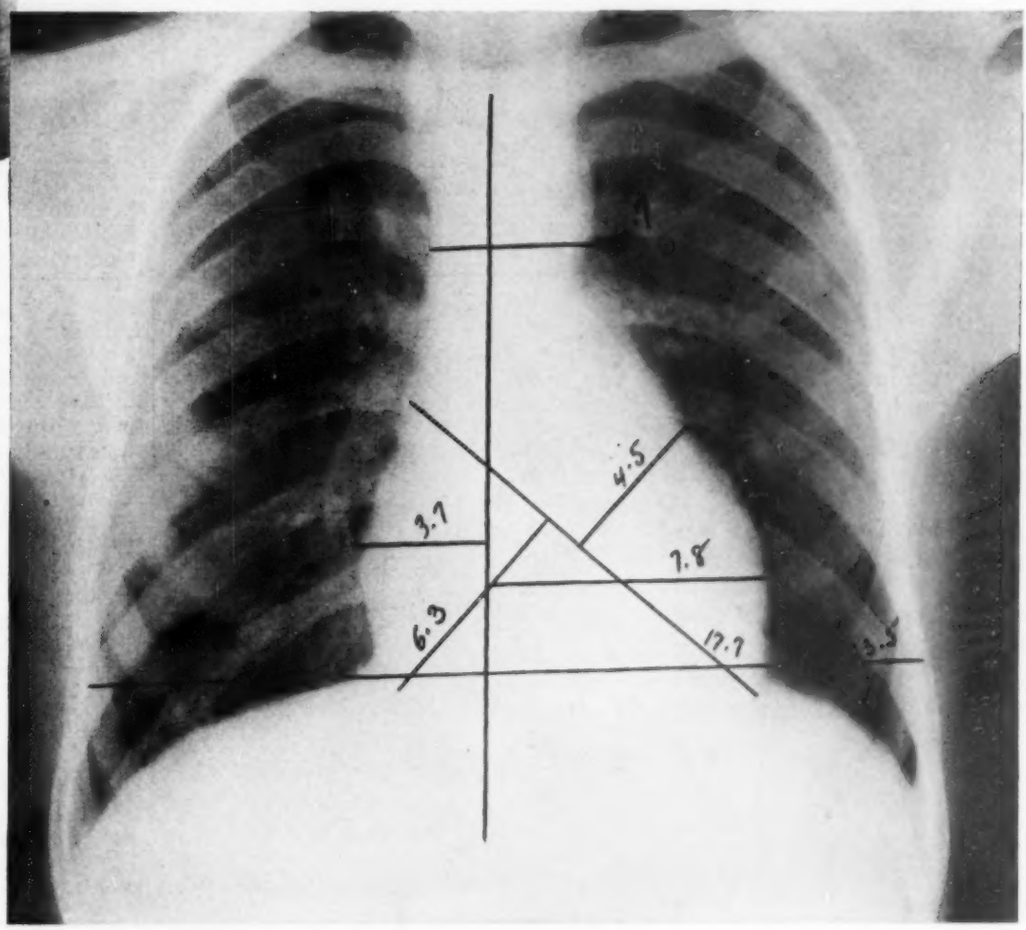
To the Editor:—I have been advised that several successful operations have been performed for retinitis pigmentosa. Please give me information concerning the surgical treatment of this condition.

M. M. W., Michigan.

Answer.—Spasmodic reports concerning the surgical cure, or rather the arrest of the progress, of retinitis pigmentosa are found in medical literature from time to time. Practically none of these so-called cures have been substantiated by other physicians, and it is questionable whether or not these may have been self limited cases. The surgical treatment of retinitis pigmentosa is still purely experimental.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

Your Heart shows a "life line," too



Radiograph of heart on which lines have been drawn to arrive at measurements of diagnostic importance.

LIFE LINE . . . success line . . . happiness line—it's fun to look for them in palms. But fortunes and futures are written in health. And important "lines" of future health and life are "read" by the x-ray specialist when he studies radiographs of the heart.

Because heart disease is one of the most common menaces to life, the heart should be examined frequently by a physician. Proper precautions to guard this vital organ should be observed. Such diseases as tonsillitis, scarlet fever, and rheumatic fever can result in permanent heart impairment. The rushing pace of modern life may overtax the heart that is not up to par. It struggles valiantly to make good. But when it is neglected and abused, invalidism or untimely death may result.

So have the condition of your heart investigated frequently by your physician. When it is indicated, he will have an x-ray examination made so the "lines" that provide invaluable diagnostic information can be "read."

Send for the booklet, "X-rays and Health," which tells how x-rays help to keep you well. Mail the coupon today.

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Please send me the new publication on Exercise prepared by your Bureau of Physical Education.

Name.....

Address.....

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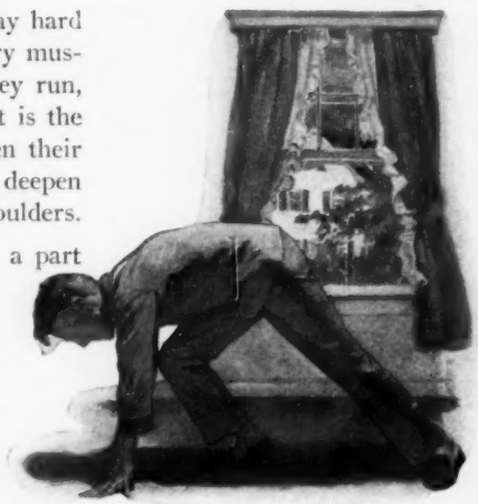
WHEN boys and girls play hard they use practically every muscle in their bodies. They run, jump, bend, twist and turn. It is the exercise they need to strengthen their muscles, straighten their backs, deepen their chests and square their shoulders.



Youngsters who are taught, as a part of their physical education, the other hygienic habits that have to do with posture, diet, cleanliness, fresh air and sleep, are bound to build stronger, healthier bodies. The pleasure found in exercise and in the skill acquired in those early years should encourage these boys and girls, when they are grown up, to continue their physical activity.

Fathers and mothers can learn from their children at play. It is easy, as one grows older, to give up exercise at the very time when it is needed. Perhaps you have forgotten that you require exercise to keep your heart and lungs in tune, to stimulate circulation, to preserve a correct posture which aids digestion and a more active functioning of other body organs.

There are some persons to whom vigorous exercise might be harmful. But unless your doctor has advised against your taking reasonable amounts of physical exercise, the booklet prepared by the Metropolitan's Bureau of Physical Education will be helpful in supplementing your normal outdoor activity. You will not begrudge the few minutes a day given to exercise when you begin to get the benefit from it.

The Metropolitan has sent to policyholders and their neighbors more than 1,500,000 illustrated Exercise Charts. Send the coupon for the 1935 revised edition of the publication on Exercise.

METROPOLITAN LIFE INSURANCE COMPANY
FREDERICK H. ECKER, PRESIDENT ~ ONE MADISON AVENUE, NEW YORK, N. Y.
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Fatigue as a Factor in Industrial Hygiene

To the Editor:—I am anxious to secure reference material and authority on the problem of fatigue. The information should be practical rather than theoretical and should explain what weight a man may lift, pull or roll, what differentiation should be made between male and female labor in work of this type and what effect rest periods have in improving the efficiency of those doing heavy work and those doing light work where speed is a factor.

J. D. S., Pennsylvania.

Answer.—"Fatigue and Efficiency" by Josephine Goldmark, published in 1912, was the first comprehensive work in the English language attempting to cull all the facts known under the title. The well known "Case For the Shorter Work-Day" by Felix Frankfurter and Josephine Goldmark, published in 1915 and filed as a court brief, took up the subject from a legal standpoint. It was published in two volumes by the National Consumers' League, New York City. Later works include "The Human Machine and Industrial Efficiency" by Frederick S. Lee and the chapter on "Fatigue and Occupation," also by Frederick S. Lee, which appears in Kober and Hayhurst's "Industrial Health," 1924. One should also have recourse to the bibliographies published by the Committee on Industrial Fatigue of the American Public Health Association, New York City.

Recently, M. Okuyama found that the optimum load is estimated at 30 per cent of body weight and is lower than that of walking-with-load which is estimated at 40 per cent, the most economical speed lying between 60 and 80 meters a minute and the optimum number of steps between 103 and 115 a minute. The least economical method is that of carrying a load on the head.

The maximum load for females may safely be placed at about 25 per cent less than that for males, while some laws prohibit females from lifting weights of more than 25 pounds as a routine measure.

The effects of rest periods are amply discussed in Lee's works and also in bulletins in the "Health Munition Workers' Series" of the British Industrial Fatigue Research Council, published shortly after the World War. Striking results of commensurate rest periods were found.

"Keep your face always toward the sunshine, and the shadows will fall behind you."—*Walt Whitman.*

Do You Know—

1. That there are methods of permanent protection against the scourge of diphtheria? *See page 400.*

* * *

2. What factors determine the limits of our health horizons? *See page 404.*

* * *

3. That the child's eyes must have special protection during measles? *See page 408.*

* * *

4. What is the commonest cause of ugly scars? *See page 410.*

* * *

5. How malaria is spread? *See page 414.*

* * *

6. That adequate prenatal and postnatal care are the best health insurance and life insurance for the mother and baby? *See page 418.*

* * *

7. Why mothers should allow their children to choose their own companions? *See page 425.*

* * *

8. How quack advertising over the radio could be eliminated most successfully? *See page 428.*

* * *

9. Why it is a good idea to keep a chart for the sick child? *See page 430.*

* * *

10. Who is considered the greatest of the microbe hunters, and why? *See page 435.*

* * *

11. What are the causes of the baby's eczema? *See page 436.*

* * *

12. What should be done about the dead teeth in your mouth? *See page 440.*

* * *

13. To what conditions the baby's feeding formula must be adjusted? *See page 446.*

* * *

14. What are the causes of iritis? *See page 451.*

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THIS LIGHT GUIDES YOUR DENTIST

Let it guide you, too

LOOK for this Seal when you select dental preparations and you can be sure of two things: first, that the product bearing the Seal is safe and dependable; second, that the advertisements you read about that product are true statements of its character.

"Accepted American Dental Association, Council on Dental Therapeutics." Let us explain what this means:

This Association has over 35,000 members throughout the United States who are banded together to advance and improve the practice of dental science. Through its offices every important development or discovery that is made in the great dental colleges and scientific laboratories is reported at once to each Dentist-member. Thus, no matter how remote your home may be, your neighborhood Dentist, if he is an A.D.A. member, is keeping constantly abreast of the latest strides of his profession.

The Council on Dental Therapeutics is a group of skilled scientists appointed by the Association to test exhaustively the many preparations offered to its members for use at the chair and at home. They also study the advertising of each product. Only if the product is found to be safe, and its advertising straightforward and honest, is its maker allowed to display the Seal of the A.D.A.

This Seal is primarily intended to guide the Dentist in his purchasing and in his recommendations to patients. But it can serve you, too. Look for it when you buy your dentifrice.

We believe that this Seal, printed on every tube, is the best advertisement that Iodent Tooth Paste can have. We tell you that Iodent is safe—that it will not harm gums or enamel—that it is made by a registered Dentist. We tell you that Iodent makes teeth gleam with unusual brightness. We tell you that Iodent's flavor is delightful. We explain that Iodent No. 1 is "for teeth easy to Bryten," Iodent No. 2 "for teeth hard to Bryten." And we point to the Seal of the A.D.A. That Seal, more than any statement of ours, should influence you to use Iodent Tooth Paste.

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When buying layettes, ask your store to have a graduate of the Mothercraft course of training wait upon you. It means a year of hard study which makes a girl a professional saleswoman on all Infants' Wear.

Doctors and nurses enthusiastically recommend VANTA garments for the first two years.

WRITE FOR FREE BOOKLET... "Baby's Outfit" tells about preparing for motherhood; selecting baby's layette, etc. Contains 500 suggested names for boys and girls. Address Dept. H-5.

Earnshaw Knitting Company
Newton, Massachusetts

SCHOOL AND HEALTH

(Continued from page 465)

among those who drop out of school. Natural lighting under all weather conditions does not provide adequate lighting intensity at all working points in the classroom.

The investigators are to be congratulated on making such an important investigation, and it is to be hoped that the school authorities will promptly follow up the recommendations.

This document could be read with profit by teachers, school principals and school architects. We are far from living up to our opportunities in eye hygiene.

HEALTH EDUCATION

The Commonhealth, July, August, September, 1934. Pp. 211. Boston: Massachusetts Department of Public Health, 1934.

ABOUT twenty-six of the leading health educators in Massachusetts have contributed articles from their special fields of interest to this number of *The Commonhealth*. These articles include information ranging from art and mental hygiene to statistical studies in health education in Massachusetts.

It is regrettable that health departments continue to issue worthwhile bulletins in a form that is far from attractive to the eye and in a print that necessitates eyestrain.

THAT MEAN COLD

By Wilson G. Smillie. Pp. 11. Boston: John Hancock Mutual Life Insurance Company, 1934.

THERE is so much misleading propaganda over the radio and through other advertising mediums that it is distinctly refreshing to get this sane and reliable booklet on our great enemy, the common cold. This infection is so common that nearly everybody has it. More than half of all absences from work and school are caused by colds. The cost in lost time is enormous, amounting to millions of dollars each year in lost wages.

Within these few pages one learns everything that the ordinary layman needs to know about colds; one learns the causes, symptoms, means of prevention and care. The language is so simple that a child in the fifth or sixth grade can read it without difficulty. In mechanical make-up the booklet is appealing.

Dr. Smillie is a professor of the Harvard School of Public Health, and he has spent years in the study of the common cold. On the trail of the common cold he has carried on his scientific researches in distant lands from the tropics to the Arctic circle. Into this booklet he has condensed many years of study and adventure in foreign lands.

A NUTRITION PROGRAM AND TEACHING OUTLINE

Price, $1. Pp. 156. Philadelphia: Philadelphia Child Health Society, 1934.

INTEREST in the science of nutrition is growing so rapidly that workers in this field need printed matter that not only is up to the minute in scientific accuracy but also has practical usefulness. In response to these needs the Child Health Society of Philadelphia has prepared and published this program and teaching outline for the use of health centers and clinics. It contains a careful statement of scientific theories, refers to carefully selected bibliographies and furnishes well planned menus. Teachers of hygiene in our public schools will find it valuable.

GOOD MANNERS

By Beth Bailey McLean. Pp. 128. Price, 72 cents. Peoria, Ill.: Manual Arts Press, 1934.

DID YOU ever stop to think about the relation of good manners to mental health? Mental hygienists have scarcely begun to recognize it themselves.

Mental health means skill, poise and serenity in making adjustments to life. Our most important adjustments are social. Many young people feel ill at ease because they are uncertain about the etiquette that one follows at parties, teas and social functions. Often they refuse invitations or, if they go, live in terror for fear that they will make some "awful" blunder.

Miss McLean has written a helpful book for young people on manners, a book that tells youth what it needs to know in a simple and direct way.

CONFERENCE ON HEARING

The 1935 conference of the American Federation of Organizations for the Hard of Hearing, Inc., will be held in Cincinnati, June 2 to 6 inclusive. Headquarters will be at the Netherland Plaza Hotel.

A joyrider is one who is riding when we are walking, and a jaywalker is one who is walking while we are riding.

"MAKE MATERNITY SAFE" IS MOTHER'S DAY SLOGAN

A nation-wide campaign to make maternity safe has been planned by the Maternity Center Association, New York City. The climax of the effort will be timed for the week previous to Mother's Day, which falls this year on May 12. A widespread appeal has been made for the cooperation of churches, women's clubs, civic and educational institutions, offering without charge to supply groups with suggestions for local programs to improve maternity care.

"Leading authorities tell us," declares Mrs. Krech, president of the association, "that at least one-half the deaths in childbirth could be prevented by adequate maternity care. More than 15,000 women in this country die annually in childbirth. The death rate has remained practically stationary during the last twenty years, despite the knowledge which exists and is available in almost every community in the country, which could save these women.

"Not until the average parent realizes that the mother of today is not getting the care that makes motherhood safe will this situation be changed. It will not be changed so long as fathers believe they have discharged their entire duty toward motherhood by sentimental expressions on Mother's Day, forgetting that there are 365 mother's days in every year and that on each of them women have babies.

"Today safe maternity care is not available to every expectant mother at a price she can afford to pay. Tomorrow it can be, if lay and professional people in every community will combine in the effort to inform parents everywhere what the six principles of adequate maternity care are, so they can demand that this care be made available in every community, rural or urban:

1. A complete medical examination early in pregnancy.
2. Regular and frequent medical supervision.
3. An aseptic delivery under the supervision of an obstetrician.
4. Supervision, care and instruction until the mother is able to resume her work.
5. Examination of the mother at six weeks, three months, six months and one year after the baby is born.
6. Arrangements for continuous medical supervision of baby.

"Do not allow another Mother's Day to pass without taking the first step toward making maternity safe for the mothers in your community."

THIS is the way ...your child should sit at school!

... back erect, chest expanded, feet firmly on floor. The book is not lying on the surface of the desk . . . but rests at about the height of the chin, at a right angle to the line of vision, and at a distance adjustable for each child's eyes and the varying conditions of light and print.

Seated in the American Universal Better Sight Desk, shown below, your child assumes naturally and comfortably the position illustrated. In such relation to textbook or desk work eyestrain is minimized. Desk top is convertible for writing or other manual work without sacrifice of erect posture. The bookrest insures reading at proper angle and focal distance while maintaining good posture—the desk designed for eye work without eyestrain.

In every community public interest and cooperation in securing Better Sight Desks to replace obsolete types will be of assistance to educators who want to protect the welfare of school children.

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If you have a child at school or will have, you need this interesting, enlightening booklet. Fill in and mail the coupon for a free copy.

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Grand Rapids, Michigan

Please send me, without cost or obligation, a copy of your booklet, "Guardians of Eyes and Health at School."

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THESE TEETH OF MINE

(Continued from page 444)

pass out through the dentin which makes up the body of the tooth, and they end in sensitive enlargements just under the hard enamel covering of the crown or the cementum covering the root. When the dentist's instrument causes pain, it is not because he has "touched the nerve" but because each stroke of the instrument is cutting many fibrils; in some areas, particularly near the surface of the tooth, these fibrils are sensitive. The fibrils occupy minute tubes of which the dentin is made up.

When the pulp dies or is devitalized by the dentist the fibrils also die to a point somewhere between the pulp and the outer surface of the root. The outer portion of the root remains alive, as it gets its blood supply from without rather than from the pulp within. So we have an anomaly; the pulp is dead and gone, replaced wholly or in part by a filling. The inner part of the dentin is dead and contains dead fragments of the fibrils or cell extensions which were broken off when the pulp was removed. In contact with this dead layer is the living portion of the root, which is attached to the bone by means of the periodontal membrane and is in position to transmit toxins to the blood stream.

The root canal of a pulpless tooth may be filled both aseptically and perfectly, even to the tiny openings of the root apex, but changes in the flesh around the apex make it still subject to infection which may be carried to it by the blood stream. The rule works both ways, for infection may be carried to a dead tooth as well as away from it.

During the twenty-five years since Hunter's celebrated lecture, dental literature has carried much discussion about the dead tooth; and these discussions are still found in the literature. Today most physicians and dentists advise the removal of pulpless teeth; others just as conscientiously advise that dead teeth are harmless, and that if the infection in the tonsils or colon is cleared up, the teeth will not matter.

Your dentist may advise extraction, and your physician may be against it; or when your physician refers you back to your dentist for the removal of certain teeth, the dentist may insist that they are all right. You may be advised to have the teeth opened and treated; to have quartz light or electric medication if you wish, but you will be warned not to let any one take your teeth away from you! All your advisors are conscientious. Doctors are entitled to disagree.

When you consult friends, you find that some have parted with dead teeth in the hope of getting rid of an illness and have rid themselves of nothing but the teeth and their faith in dentists and physicians. Others will advise you to have the teeth "cut out surgically" in order to be sure of extricating all the infection. And still you are asking yourself, "What in the world shall I do about my dead teeth?"

The answer in any specific case cannot be made in generalities. The matter should be decided, in the case of the sick patient, by the combined intelligence of both physician and dentist. At present the physician knows too little about teeth and the dentist too little about general medicine for either to bear the responsibility alone.

But certain things are true in general. The operation of filling a dead tooth may be fraught with future hazard. Samuel Fitch, M.D., a physician who specialized in dentistry, in his textbook published in 1835 advised that when decay reached the pulp, the best policy was the immediate removal of the tooth. That is still good advice today.

No patient should keep dead teeth if it can possibly be avoided, and it usually can. Man faces enough unavoidable hazards without permitting unnecessary ones. Great plagues are now things of the past. The health and mortality problem of the present and the future is one of focal infection; it has ceased to be a mass problem and has become a problem of and for the individual. And of all the nests of infection which produce indirectly the disorders from which modern man dies, those of the head, throat and mouth run to the highest percentage.

Recent research indicates that the ability of certain germs to seek out certain organs or parts of the body for their depredations depends on the amount of electropositive charge which they carry. An interesting point is that during an influenza epidemic the germs obtained from a pulpless tooth take on somewhat the electrocharge qualities of influenza germs.

There is still much that is not known about germs; but all that is known points to the wisdom of getting rid of them promptly.

Listen to Dr. Samuel Fitch! After citing numerous cases of disease cured by the extraction of diseased teeth and quoting others from writers dating back to 1770, he concludes:

"If I could raise my voice so as to be heard by every medical man

in America, I would say to him, attend to your patients' teeth; if they are diseased, direct such remedies as shall restore them to health; and if in health such means as will keep them so; and know for your satisfaction and pleasure that you will always administer to the well being and best interests of your patients, and may perhaps occasionally preserve a valuable life."

Better advice could hardly be penned today.

[NOTE.—In the June issue, Dr. McLean will discuss Vincent's infection, popularly known as trench mouth.]

CHILDREN HAVE RIGHT TO HEALTH AND HAPPINESS

Every child has a right to health, happiness and intelligent care and to opportunities for normal growth and development, physically, mentally and spiritually; and the purpose of Child Health Day observance, national and state, is to focus attention on these inherent rights of children. This is the thought of Dr. J. H. M. Knox Jr., chief of the bureau of child hygiene of the state department of health, and chairman of the child health day committee in Maryland.

Child Health Day is not an end in itself, but it marks the beginning of the year-round activities of all forces charged with the maintenance and well being of children and young people in the state.

Some of the factors mentioned by Dr. Knox to which attention should be given in connection with the observance of Child Health Day include:

"The right of every mother to adequate care before, during and after the birth of the baby.

"The right of every child to adequate care.

"The right of every young child to be protected against diphtheria and smallpox.

"The nutritional needs of growing children and the importance of milk, whole grain cereals, green leafy vegetables and fruits in their diets.

"The recreational needs of children and young people; provision for safe, suitable places for play and pleasure."

Ability to face the fact of having tuberculosis, to fight back against the inroads of the disease, and to look forward with confidence to the future with health regained is an essential to successful curing.

—The Hoosier Res-Cuer.

Small
FOR HER AGE AND UNDERWEIGHT TOO

but you ought to see the way Betty is shooting up now!

EVEN ON tiptoes, Betty was smaller than the smallest playmate of her own age. While other youngsters shot up, filled out, gained in height and weight—Betty remained thin, scrawny, small for her age until her diet was improved with more milk.

But you ought to see Betty now! How she has added inches to her height—how strong, sturdy, well-proportioned she has become. And the reason is that Betty is now receiving every day, a diet improved by *a quart of milk mixed with Cocomalt.*

Milk is the almost perfect food for children. Mixed with Cocomalt, it provides *extra* carbohydrates for body heat and physical activity; *extra* proteins for solid flesh and muscle; *extra* food-calcium, food-phosphorus and Sunshine Vitamin D for the formation of strong bones, sound teeth.

Help your child gain as he grows

The famous Lanarkshire milk experiment in 1930 among 20,000 school children shows definitely that children who received milk daily during the test grew faster and were healthier than those who did not.

If milk alone can aid growth and improve nutrition, think what an advantage your child will have if you give him Cocomalt in milk. For, made as directed, Cocomalt almost DOUBLES the food-energy value of every glass or cup of milk.

Cocomalt is accepted by the American Medical Association, Committee on Foods.

Wonderful for adults, too

Not only does Cocomalt and milk help children thrive, but for grown-ups, with its nutritional value and extra food-energy, it is a pleasant way to add valuable food essentials to the diet. A hot drink promotes relaxation; for sound, restful sleep, drink Cocomalt HOT before retiring.

Cocomalt is sold at grocery, drug and department stores in ½-lb., 1-lb. and 5-lb. hospital-size air-tight cans.

SPECIAL TRIAL OFFER: For a trial-size can of Cocomalt, send name and address (with 10c to cover cost of packing and mailing) to R. B. Davis Co., Dept. JA5, Hoboken, N. J.

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CONTENTS

"VITAMIN A" by L. B. Mendel, Ph.D., Sc.D.
"CLINICAL FEATURES OF VITAMIN A DEFICIENCY" by George B. Eusterman, M.D., and Dwight L. Wilbur, M.D.
"REVIEW OF RECENT STUDIES ON THE ANTINEURITIC VITAMIN" by H. D. Kruse, Sc.D., and E. V. McCollum, Ph.D., Sc.D.
"VITAMIN B_1 IN RELATION TO THE CLINIC" by George R. Cowgill, Ph.D.
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"CLINICAL ASPECTS OF VITAMIN G DEFICIENCY" by Frank P. Underhill, Ph.D.
"RECENT ADVANCES IN KNOWLEDGE OF SCURVY AND THE ANTISCORBUTIC VITAMIN" by Alfred F. Hess, M.D.
"VITAMIN D" by Ruth Cowan Clouse, S.M.
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AMERICAN MEDICAL ASSOCIATION
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LEST WE FORGET—THE CHILDREN'S CHARTER

I. For every child spiritual and moral training to help him to stand firm under the pressure of life.

II. For every child understanding and the guarding of his personality as his most precious right.

III. For every child a home and that love and security which a home provides; and for that child who must receive foster care, the nearest substitute for his own home.

IV. For every child full preparation for his birth, his mother receiving prenatal, natal, and postnatal care; and the establishment of such protective measures as will make childbearing safer.

V. For every child health protection from birth through adolescence, including: periodical health examinations and, where needed, care of specialists and hospital treatment; regular dental examinations and care of the teeth; protective and preventive measures against communicable diseases; the insuring of pure food, pure milk, and pure water.

VI. For every child from birth through adolescence, promotion of health, including health instruction and a health program, wholesome physical and mental recreation, with teachers and leaders adequately trained.

VII. For every child a dwelling place, safe, sanitary, and wholesome, with reasonable provisions for privacy, free from conditions which tend to thwart his development; and a home environment harmonious and enriching.

VIII. For every child a school which is safe from hazards, sanitary, properly equipped, lighted, and ventilated. For younger children nursery schools and kindergartens to supplement home care.

IX. For every child a community which recognizes and plans for his needs, protects him against physical dangers, moral hazards, and disease; provides him with safe and wholesome places for play and recreation; and makes provision for his cultural and social needs.

X. For every child an education which, through the discovery and development of his individual abilities, prepares him for life; and through training and vocational guidance prepares him for a living which will yield him the maximum of satisfaction.

XI. For every child such teaching and training as will prepare him for successful parenthood, homemaking, and the rights of citizenship; and, for parents, supplementary training to fit them to deal wisely with the problems of parenthood.

XII. For every child, education for safety and protection against accidents to which modern conditions subject him—those to which he is directly exposed and those which, through loss or maiming of his parents, affect him indirectly.

XIII. For every child who is blind, deaf, crippled, or otherwise physically handicapped, and for the child who is mentally handicapped, such measures as will early discover and diagnose his handicap, provide care and treatment, and so train him that he may become an asset to society rather than a liability. Expenses of these services should be borne publicly where they cannot be privately met.

XIV. For every child who is in conflict with society the right to be dealt with intelligently as society's charge, not society's outcast; with the home, the school, the church, the court and the institution when needed, shaped to return him whenever possible to the normal stream of life.

XV. For every child protection against labor that stunts growth, either physical or mental, that limits education, that deprives children of the right of comradeship, of play, and of joy.

XVI. For every rural child as satisfactory schooling and health services as for the city child, and an extension to rural families of social, recreational, and cultural facilities.

XVIII. To supplement the home and the school in the training of youth, and to return to them those interests of which modern life tends to cheat children, every stimulation and encouragement should be given to the extension and development of the voluntary youth organizations.

XIX. To make everywhere available these minimum protections of the health and welfare of children, there should be a district, county, or community organization for health, education, and welfare, with full-time officials, coordinating with a state-wide program which will be responsive to a nation-wide service of general information, statistics, and scientific research. This should include: (a) trained, full-time public health officials, with public health nurses, sanitary inspection, and laboratory workers; (b) available hospital beds; (c) full-time public welfare service for the relief, aid, and guidance of children in special need due to poverty, misfortune, or behavior difficulties, and for the protection of children from abuse, neglect, exploitation, or moral hazard.

For every child these rights, regardless of race, or color, or situation, wherever he may live under the protection of the American flag.

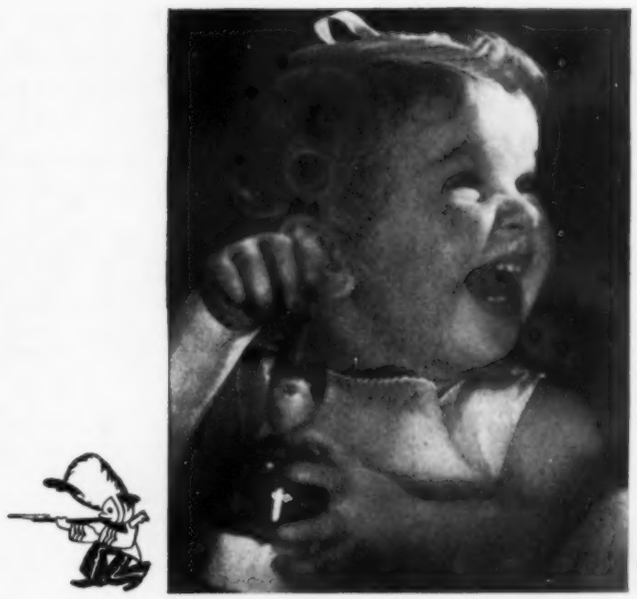
DIPHTHERIA: A DREADED SCOURGE

(Continued from page 403)

of age yield positive Schick reactions, this test is generally omitted in practice, and if the young child has been intimately exposed to a case of diphtheria, antitoxin is administered for immediate but temporary protection, or passive immunization. Where there has been no exposure, but a more lasting immunity is desired, toxin-antitoxin mixture or toxoid is administered for active immunization, without performance of the Schick test before the initial injection.

Parents should not delay safeguarding against diphtheria until the child reaches school age. Preschool protection is the best and safest procedure. It is during the first three years of life that the susceptibility to diphtheria as well as the mortality is the greatest. The most suitable age for immunization of infants is at 6 months, in the country, and 9 months, in the city, or as soon thereafter as convenient. The preferred age for immunization of the infants in the country is earlier than in the city as parents in the country are more susceptible and less immune to diphtheria than parents in the city, most of whom are immune. Prompt action at the period of life designated will mean a saving of money, freedom from worry and suffering, and the saving of lives which otherwise may be lost. All parents owe it to their own sense of obligation and to their desire to provide for the best welfare of their children to apply for and receive approved protective treatment for their infants and young children.

Reports of many municipal and state health departments reveal a marked decrease in the number of cases of diphtheria reported during 1934, as compared with previous years. The achievements are due almost wholly to the immunization procedure and to the cooperation of parents with medical practitioners and health and school authorities in an earnest effort to stamp out this disease. It has been clearly established that simple precautions will remove every child from the field of danger and that universal recognition of this fact will practically eliminate diphtheria as an enemy of humanity. The progress made in all large communities should encourage renewed and continued effort in the cause of child safety, and every one should cooperate with the local health authorities in fighting and eliminating this dangerous disease.



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HELPS BABY BUILD RESISTANCE

Vitamins and minerals are more highly retained in Heinz Strained Foods than in most home-prepared vegetables

SCIENCE tells us that an abundance of Vitamin A aids in building general resistance to disease. As one source of this vitamin, mothers feed their babies certain vegetables and fruits, cooked and strained.

And now scientific tests show that vitamin retention is lower in most home-prepared vegetables than in Heinz Strained Foods. This has been proved true also of the natural vegetable mineral salts.

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Heinz cooks and strains *hours-fresh* vegetables with equipment and methods which retain these vital nutrients to high degree—then *vacuum-packs* them in enamel-lined tins. They need merely be warmed in the tin, in boiling water.

When your baby's diet includes Heinz Strained Foods you can be assured, at *all times of year*, a uniform quota of vitamins and minerals.

GET THIS BABY DIET BOOK. The new book "*Modern Guardians of Your Baby's Health*", contains many up-to-date facts regarding the various vitamins and mineral salts, and the foods in which they are found. Also information on infant care and feeding. For your copy, send labels from 3 tins of Heinz Strained Foods and 10 cents. Address H. J. Heinz Company, Dept. H205, Pittsburgh, Pa.

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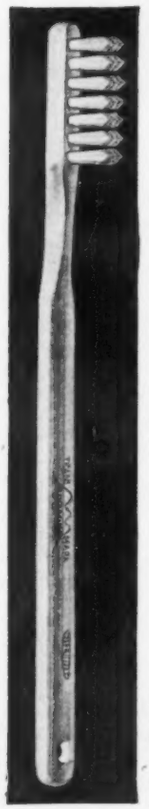

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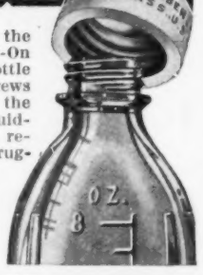

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WHEN WRITING ADVERTISERS PLEASE MENTION HYGEIA

STERILIZED SHOES AID IN EXTERMINATING FUNGI

The problem of sterilizing shoes against the common ringworm fungi that are the common causes of "athlete's foot," or dermatophytosis, is one that arises frequently. Though the original infection may have been obtained in any number of ways, such as in swimming pools, showers or locker-rooms, the disease is perpetuated and maintained by the wearing of socks, shoes and slippers that contain the organism. This is the theory of Dr. J. Lamar Callaway, contained in an article on "Methods of Sterilizing Shoes against Fungi," which appeared in a recent issue of *The Journal of The Medical Association of the State of Alabama.*

Among the many methods which have been devised to sterilize shoes and other wearing apparel are the following: Saturate a cloth with formaldehyde and, being careful not to get the solution on the hands, swab out the interior of the shoes. Place a cloth saturated in formaldehyde in the toe of the shoe, and leave it there overnight. Place a blotter that has been previously saturated in formaldehyde in the shoe as an inner sole, and wear it for several days.

Another method is as follows: Place 1 quart of formaldehyde in a large container that may be made airtight. An ordinary lard can will suffice. Place an object in the bottom of the can to support the shoes above the fluid, and then place the shoes, including bedroom slippers, above the liquid. Close the lid, making the container airtight, and leave the shoes exposed to the fumes of the formaldehyde from twenty-four to forty-eight hours.

This method has proved satisfactory, and in addition to being inexpensive it is a clean and effective method of sterilizing several shoes at one time. Its use will tend to lessen recurrence of athlete's foot.

TODAY

Will I forget the way they look,
The way they act today,
The pit, pit, pat, of tireless feet,
The things they do and say?

I know that life in years to come
Holds nothing half so sweet,
As these, my days of motherhood.
Why are the years so fleet?

—Frances White in *The National Parent-Teacher Magazine.*

Do little things now; so shall big things come to thee by and by asking to be done.

HEALTH

According to Walter B. Pitkin, a man who scores close to 100 per cent in a medical examination will possess the following characteristics of good health:

1. He eats almost any food with gusto and digests it easily.
2. He eliminates waste products freely and thoroughly.
3. He has a rugged heart that endures sudden extra and prolonged exertion easily.
4. His muscles always have excellent "tone." They are never flabby or sluggish, hence his posture and gait tend to exhibit liveliness and strength.
5. His lungs breathe deeply and carry the load of extra effort without injury.
6. He recovers quickly from physical injuries and from infections, so far as this is humanly possible.
7. He recovers quickly from emotional shocks, such as fears, worries, rages and the like, and does not suffer prolonged after-effects.
8. He readily forms fundamental habits of eating, sleeping, working and exercising; but he can also endure upsets in these habits.
9. While he may not be blessed with an immense fund of free energy, he is always able to expend the energy he possesses without excessive fatigue or emotional disturbances.

—*Georgia Education Journal.*

BOYS' FREE TIME

In a study made in Nashville, Tenn., to determine what 676 boys in the junior and senior departments of the normal schools did in their free time, it was found that up to 14 years of age practically every boy spent most of his time at home, according to a report in *Recreation.* After reaching 14 years of age, he spent 80 per cent of his time away from home, at the moving picture shows, with the local gangs, at one of the stores, on the street corner, at the river front where he could go swimming, and at various miscellaneous places.

As much as 35 per cent of all persons who seek medical help are suffering entirely or partially from some sort of emotional problem, it was estimated from a recent poll of medical school professors. Physicians have found that from 20 to 45 per cent of their patients have bodily symptoms brought on mainly by some kind of emotional strain.

A HOUSEWIFE LOOKS AT THE COMMITTEE ON FOODS

(Continued from page 450)

Sieved vegetables and other foods should be offered his royal highness, the baby, in a matter-of-fact manner, with no fuss or commotion, before his favorite, milk, is offered. One-half teaspoonful will suffice for the first day, and the amount may be increased gradually until the average baby takes half of a 4½ ounce can of sieved vegetable or fruit pulp at one feeding.

The very young child does not have his sense of taste developed; but his understanding of human nature is quite keen, and he becomes suspicious if the mother is not entirely businesslike or if he finds he can hoodwink her into thinking that he is the real boss of the situation. Many a young tyrant rules the household, demands that the house shall be absolutely silent when he sleeps, that meals shall be served at his command and that bribes of candy and ice cream shall replace old-fashioned spankings.

Anorexia is the scientific name for loss of appetite or refusal to eat. My own son was glad to eat whatever he could get when it was offered. My private opinion was that the doctor was slowly starving him, but my confidence in the judgment of the doctor was so great that I followed his directions exactly. The result was the good digestion, by a weak baby, of small amounts of a weak formula gradually increased to larger amounts of a stronger mixture. The baby had no digestive upsets, and he made a consistent, encouraging gain.

A child is far more important than anything else in the life of a mother, and she is glad that the Committee on Foods of the American Medical Association is engaged in this work of considering for acceptance special foods for infants.

Infant food preparations accepted by the Committee on Foods are advertised to physicians in their medical journals. Go to your physician for a physical examination of the child and for advice regarding the kind and amount of infant preparations best suited to the child.

Several of the foods for infants which are advertised to the public have been discussed from month to month in HYGEIA. If you have not already obtained lists of accepted brands of foods in these groups, they may be obtained by sending 6 cents in stamps for each list desired. There are available lists of accepted brands of evaporated milk, sieved vegetables, cereals, fruit juices and tomato juice.

[NOTE.—Next month, Mrs. McCray will discuss desserts and dessert powders.]

A Solution for this Feeding Problem . . .

If your children tire of milk with every meal, why not try alternating with Krim-Ko Chocolate Flavored Drink?

Krim-Ko is chocolate flavored, sweetened, partially defatted milk (added tapioca—salt).

Krim-Ko has the food energy value of standard milk. It is not heavy and gagging. It is rich in bone and tooth-building calcium. It can be served hot or cold, with meals or between meals. Costs less than self-mixed drinks. Best of all—Krim-Ko has that TRUE delicious chocolate flavor that everybody loves. If there is not a dairy in your town that handles Krim-Ko, write to the Krim-Ko Company, 4830 S. Turner Avenue, Chicago, Illinois, and give us the name of your milk dealer.

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DENTISTS HAVE A DEFINITE PART IN THE CONTROL OF CANCER

One of the most consistent and encouraging developments in cancer education is the growing interest and activity of the dental profession in this field, the bulletin published by The American Society for the Control of Cancer says.

Several reasons are pointed out indicating why the part which members of the dental professions will play in the fight against cancer will be of unique value. The first of these is that dentists are scientifically trained observers who can easily learn to recognize symptoms that may mean cancer not only of the lip, tongue, oral cavity and esophagus, but of the skin of the head, face and hands.

In addition, dentists are in a unique position in being able to mention a questionable symptom to a patient with some authority and yet with comparatively little chance of creating a phobia. Advice from one's dentist is likely to be taken seriously but not with undue emphasis on emotionalism. The dentist may also have the opportunity of following up a possible cancer patient whom he has advised to obtain medical examination. For the patient's sake, the dentist should require a "dental" appointment at not more than a month's interval after the date when his suspicions were aroused; this will enable him to ascertain whether or not the patient has followed his advice to be properly examined.

Finally, the dentist is in a remarkably strong position to act as an unbiased adviser. If properly informed, he knows that radium, x-rays and surgery are the three approved methods of cancer therapy; he knows that speed in reporting for diagnosis and treatment is directly correlated with the chance for cure. He represents no one school of thought and has no professional axes to grind. Since he is unable to treat cancer himself, no thought of personal gain will taint his advice.

The dentist stands as a scientific observer, free from personal motives, and placed by the nature of his work in a position to examine more or less at regular intervals several sites of cancer of the types that can frequently be cured if recognized and treated early.

Work done to secure better physical conditions, both in school and at home, is probably as significant for the morality of children as is any instruction that is given.

—George D. Strayer.

RURAL HEALTH WORK HAS MANY NEEDS AND OBSTACLES

Rural schools present particularly difficult health problems. The most significant obstacles to carrying on adequate rural health work are listed in the *Weekly Bulletin* of the California department of public health as: (1) lack of physical examinations, health inspections and clinical service, (2) lack of funds for correction of defects, (3) rural school plants below proper hygienic standards, (4) lack of knowledge of the value of vaccination and immunization resulting in communicable disease epidemics, (5) insufficient training of teachers regarding the organization of health service programs and health teaching, (6) lack of parental education along health lines and (7) lack of effective public relations programs to promote understanding of the needs and values of health service.

Nevertheless, educators and rural health workers have twelve goals for which to work:

1. Need of greater coordination among departments of education and departments of health and social agencies.

2. Need of traveling clinics which will bring to rural areas the same specialized expert medical and psychiatric service available in cities.

3. More state aid for local health programs to provide medical inspection and health supervision in rural areas.

4. Greater emphasis on health education in the elementary and secondary school curriculum.

5. Power jointly vested in the state department of education and the state board of health to enforce sanitary regulations in building and maintenance of school buildings.

6. Power of condemnation jointly vested in the state department of education and the state board of health of unsafe, insanitary and educationally unserviceable school buildings.

7. Better training in health education in teacher training institutions; a training which will acquaint prospective teachers with the health resources of the state, care of special cases, and make them as eager to secure desirable accomplishment in health as in any other phase of school work.

8. Public health training for all school nurses. Training designed to articulate health service more closely with health education programs.

9. Greater emphasis on mental health; services of a psychiatrist and a psychiatric social worker available in rural areas.

10. Closer integration of health service, health instruction, physical activities and recreation programs within schools and with homes.

11. Specially equipped room in each school building designed for health service.

12. Adequate plan of cumulative records of pupil's health, covering the entire school life of the child.

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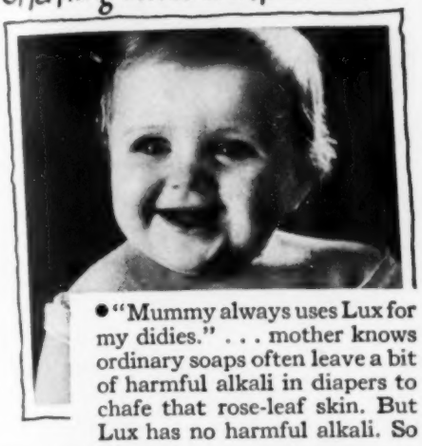

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FREE PAMPHLET

DISEASE GERMS PERISH WITHOUT HIGHER ANIMALS

Disease germs would perish but for human beings and animals. Harmful bacteria find lodgment in the bodies of higher creatures and are thus kept alive. Microbes travel from person to person or from animal to person by very definite routes, which include the droplet route, direct contact or inoculation, water, food and insects, according to a bulletin from the Iowa State department of health.

Moist particles extruded with coughing, sneezing and talking are a common means of conveying infectious disease. The viruses of measles, mumps and smallpox and the germs of diphtheria, scarlet fever and tuberculosis are typical examples of diseases spread by "droplet" infection.

Disease germs may be transmitted by direct contact or inoculation. Such transfer of infection may be the result of contact with infected persons or animals. Inoculation of virulent bacteria may occur accidentally, as in the laboratory or operating room. Water often carries the microbes of intestinal or bladder discharges of patients or carriers. These discharges are conveyed to rivers, or at times to a nearby well. Food not infrequently transports disease germs. Milk, contaminated by a typhoid carrier or obtained from infected animals, causes many cases of human illness. Insects provide a route; certain mosquitoes, for example, carry diseases from person to person. They may pass from one person to another infecting each with malaria or yellow fever.

Proper isolation of infected persons will go far toward preventing the spread of such diseases as measles and scarlet fever. The virus of measles is not known to be carried by healthy, immune persons who go in and out of a home that harbors a case of the disease. Measles is highly contagious; scarlet fever is less so; both are subject to grave complications. Reduction in the number of deaths from measles and scarlet fever is dependent directly on medical preventive measures. Parents are urged to observe health rules and to cooperate with health and school authorities in the control of contagion.

Once the power of imagination with a realistic background is created in children, it will last all through their lives and will add an enormous amount of happiness to life.—*Eric P. Kelly.*

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● By Dr. Thurston S. Welton
Editor, The American Journal of Surgery

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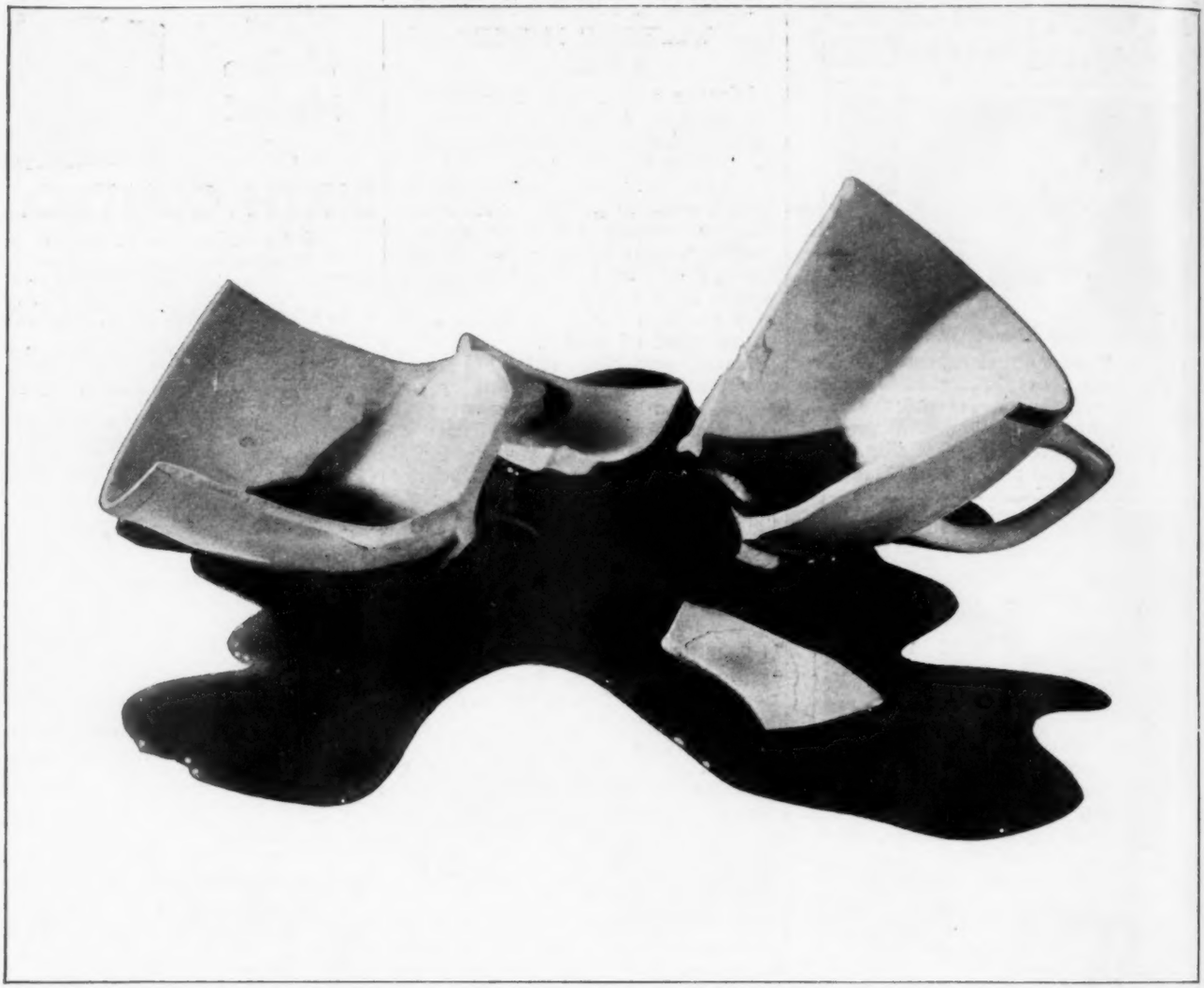

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